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## AUSTROTAXACEAE, A NEW FAMILY OF PINOPHYTA

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### ABSTRACT

**Austrotaxaceae**, the name of a monogeneric New Caledonian gymnospermous family long thought to have been validly published by Nakai (1938, 1943), is validated.

KEY WORDS: Austrotaxaceae, nomenclature, New Caledonia

One of the family names in current use not accounted for by Reveal & Hoogland (1990, 1991) is Austrotaxaceae, a monogeneric taxon of Pinophyta from the northern part of New Caledonia. The name is validated here so that it may be included in a list of vascular plant family names (Hoogland & Reveal 1993) being considered for protection under the provisions proposed by Greuter (1991) for names in current use.

**Austrotaxaceae** Nakai ex Takhtajan & Reveal, *fam. nov.* A Taxaceis strobilo masculo paniculato-spicato bracteato, bracteis stamina peltata subtendentibus, strobili foeminei cum bracteatus sterilibus spiraliter dispositis, et tracheidis marginato-punctalis haud spiraliter dispositis incrassatis diversae. - TYPE: *Austrotaxus* Compton (1922).

Austrotaxaceae was first proposed by Nakai (Tyosen-Sanrin 158:14. 1938 and Chosakuronbun Mokuroku [*Ord. Fam. Trib. Nov. App.*] 35. 1943), but the

name was a *nomen nudum*. Airy Shaw (in J.H. Willis, *Dict. Fl. Pl. Ferns*, ed. 7, 108. 1966 and ed. 8, 112. 1973), and C.R. Gunn *et al.* (U.S.D.A. Tech. Bull. 1796:11. 1992) cited the name in synonymy, while J.A. Duke (*Fam. Polyclave* A8. 1969) provided diagnostic features but gave no Latin description, so that his name is invalid (Art. 36.1; Greuter *et al.* 1988). The name was accepted by Takhtajan (*Florist. Reg. World* 310. 1986, *nom. nud.*).

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### THREE NEW SUPRAFAMILIAL NAMES IN MAGNOLIOPHYTA

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#### ABSTRACT

Three suprafamilial names proposed by Takhtajan in 1967, **Dilleniidae**, **Dilleniaceae**, and **Barbeyales**, are validated here as the initially cited validating descriptions were not in Latin as required by Art. 36.1 of the *International Code of Botanical Nomenclature*.

**KEY WORDS:** Magnoliophyta, subclass, superorders, orders, nomenclature

In 1967, the junior author proposed a series of suprafamilial names within Magnoliophyta, basing each on "a previously and effectively published description or diagnosis" as required by Art. 32.1(c) of the *International Code of Botanical Nomenclature* (Greuter *et al.* 1988). Unfortunately, three of those new names were not validated by a Latin description or diagnosis as mandated by Art. 36.1. Accordingly, the following names, long in use, are proposed again.

**Dilleniidae** Takhtajan *ex* Reveal & Takhtajan, *subclass. nov.* based on Dilleniaceae R.A. Salisbury, *Parad. Lond.* 2: sub t. 73. 1807 ("Dilleneae").  
- T.: *Dillenia* Linnaeus (1753).



**Dilleniaceae** Takhtajan ex Reveal & Takhtajan, *superord. nov.* based on Dilleniaceae R.A. Salisbury, *Parad. Lond.* 2: sub t. 73. 1807 ("Dilleneae"). - T.: *Dillenia* Linnaeus (1753).

**Barbeyales** Takhtajan ex Reveal & Takhtajan, *ord. nov.* based on the original description of the type genus *Barbeya* Schweinfurth, *Malpighia* 5:332. 1892.; Barbeyaceae Rendle, 1916, *nom. cons.*

### ACKNOWLEDGMENT

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## NEW ORDINAL NAMES FOR EXTANT VASCULAR PLANTS

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### ABSTRACT

Ten ordinal names proposed by me in 1992 are validated here as the cited validating descriptions were not in Latin as required by Art. 36.1 of the *International Code of Botanical Nomenclature*. Sixteen additional ordinal names discovered in the literature since 1992 are validly published: ten are members of Polypodiophyta: *Aspleniales*, *Blechnales*, *Dicksoniales*, *Hymenophyllopsidales*, *Loxsomatales*, *Mattoniales*, *Negripteridales*, *Plagiogyriales*, *Platyzomatales*, and *Stromatopteridales*. Two are referred to Pinophyta: *Cephalotaxales* and *Sciadopityales*. The remaining five are flowering plants (Magnoliophyta): *Byblidales*, *Icacinales*, *Myrothamnales*, *Rhizophorales*, and *Tecophilaeales*.

**KEY WORDS:** Polypodiophyta, Pinophyta, Magnoliophyta, orders, nomenclature

In an article published in 1992, I attempted to validate numerous ordinal names now in current use but failed to follow all of the provisions in the *International Code of Botanical Nomenclature* (Greuter *et al.* 1988). Although all of the validating descriptions (Art. 32.1[c]) cited were validly published (Art. 32.3), I did not realize that Art. 36.1 mandated that after 1 Jan 1935, a name of a new taxon (not defined in the *Code* except partially in Art. 72.1[a]) must be accompanied by a reference to a previously and effectively published Latin description or diagnosis. As many of the validating descriptions I cited were in English, German, or French, it is necessary to validate the names with a description in Latin. However, unlike the provisions relative to the valid publication of names at and below the rank of family (Art. 41), the Latin description for suprafamilial ranks can be taken from any rank as there are no provisions in the *Code* to the contrary. Accordingly, the following names are proposed again.

**Actinidiales** Takhtajan *ex* Reveal, *ord. nov.* based on the description of the type genus *Actinidia* J. Lindley by Bentham in Bentham & Hooker, *Gen. Pl.* 1:184. 1862; Actinidiaceae J. Hutchinson, 1926.

**Cercidiphyllales** H.-H. Hu *ex* Reveal, *ord. nov.* based on the description of type genus *Cercidiphyllum* Siebold & Zuccarini by Walpers in *Ann. Bot. Syst.* 1:364. 1848; Cercidiphyllaceae Engler, 1909.

**Crossosomatales** Takhtajan *ex* Reveal, *ord. nov.* based on the description of the type genus *Crossosoma* Nuttall by Bentham in Bentham & Hooker, *Gen. Pl.* 1:15. 1862; Crossosomataceae Engler, 1897.

**Dioncophyllales** Takhtajan *ex* Reveal, *ord. nov.* based on Dioncophyllaceae (Gilg) Airy Shaw in Kew Bull. 6:333. 1952. - T.: *Dioncophyllum* Baillon, *nom. cons.*

**Eupteleales** H.-H. Hu *ex* Reveal, *ord. nov.* based on the description of the type genus *Euptelea* Zuccarini by Hooker in Bentham & Hooker, *Gen. Pl.* 1:954. 1867; Eupteleaceae K. Wilhelm, 1910.

**Hydrostachyales** Diels *ex* Reveal, *ord. nov.* based on [Podostemaceae] subfam. ["subordo"] Hydrostachyoideae ["Hydrostachyeae"] Weddell in Alph. de Candolle, *Prodr.* 17:86. 1873. - T.: *Hydrostachys* Du Petit-Thouars; Hydrostachyaceae Engler, 1898.

**Lactoridales** Takhtajan *ex* Reveal, *ord. nov.* based on the description of the type genus *Lactoris* R.A. Philippi by Bentham in Bentham & Hooker, *Gen. Pl.* 3:127. 1880; Lactoridaceae Engler, 1888.

**Salvadorales** R. Dahlgren *ex* Reveal, *ord. nov.* based on the description of the type genus *Salvadora* Linnaeus by Endlicher, *Gen. Pl.* [15:]1141. 1840; Salvadoraceae J. Lindley (1836), *nom. cons.*

**Welwitschiales** C. Skottsberg *ex* Reveal, *ord. nov.* based on the description of the type genus *Welwitschia* J.D. Hooker, *nom. cons.*, by Bentham in Bentham & Hooker, *Gen. Pl.* 3:417, 418. 1880; Welwitschiaceae Markgraf, 1926.

**Winterales** A.C. Smith *ex* Reveal, *ord. nov.* based on [Magnoliaceae] trib. Wintereae Bentham in Bentham & Hooker, *Gen. Pl.* 1:17. 1862. - T.: *Wintera* J.A. Murray, *nom. illeg.*  $\equiv$  *Drimys* J.R. & G. Forster; Winteraceae R. Brown *ex* Lindley, 1830.

Continued work on ordinal names has revealed others that require validation since I accounted for several in 1992. Dr. Ruurd D. Hoogland has pointed out to me that most of the ordinal names proposed by Tieghem are not validly



published as they fall afoul of Ex. 6 in Art. 18. Although Tieghem used the termination "-ales", the names themselves were treated by Tieghem as French, and I accept Hoogland's recommendation that such names must be considered invalid.

**Aspleniales** Pichi Sermolli *ex* Reveal, *ord. nov.* based on [Filicaceae ("Filices")] D. Asplenieae ("Aspleniaceae") S.F. Gray, *Nat. Arr. Brit. Pl.* 2:11. 1821 - T.: *Asplenium* Linnaeus; Aspleniaceae Newman, 1840.

**Blechnales** Pichi Sermolli *ex* Reveal, *ord. nov.* based on [Filicaceae ("Filices")] trib. Blechneae ("Blechnaceae") C. Presl, *Epimel. Bot.* 103. 1851 [Abh. Königl. Böhm. Ges. Wiss. ser. 5, 6:463. 1851]. - T.: *Blechnum* Linnaeus; Blechnaceae (C. Presl) Copeland, 1947.

**Byblidales** Nakai *ex* Reveal, *ord. nov.* based on the original description of type genus *Byblis* R.A. Salisbury, *Parad. Lond.* 2: sub t. 95. 1808; Byblidaceae Domin, 1922.

**Cephalotaxales** Takhtajan *ex* Reveal, *ord. nov.* based on the original description of the type genus *Cephalotaxus* Siebold & Zuccarini *ex* Endlicher, *Gen. Pl. Suppl.* 2:27. 1842; Cephalotaxaceae Neger, 1907.

**Dicksoniales** Pichi Sermolli *ex* Reveal, *ord. nov.* based on [Filicaceae ("Filices")] trib. Dicksonieae ("Dicksoniaceae") C. Presl, Abh. Königl. Böhm. Ges. Wiss. ser. 4, 5: [= *Tent. Pterid.*] 133. 1836. - T.: *Dicksonia* L'Héritier.

**Hymenophyllopsidales** Pichi Sermolli *ex* Reveal, *ord. nov.* based on Hymenophyllopsidaceae Pichi Sermolli, *Webbia* 24:712. 1970. - T.: *Hymenophyllopsis* Goebel.

**Icacinales** Tieghem *ex* Reveal, *ord. nov.* based on [Olacaceae ("Olacineae")] trib. Icacineae Bentham, *Trans. Linn. Soc. London* 18:679. 1841. - T.: *Icacina* A.H.L. de Jussieu.

**Loxsomatales** Pichi Sermolli *ex* Reveal, *ord. nov.* based on Loxsomataceae C. Presl, *Gefässbündel Farrn* 31. 1847 [Abh. Königl. Böhm. Ges. Wiss. ser. 5, 5:339. 1848] ("Loxsomaceae"). - T.: *Loxsoma* R. Brown *ex* A. Cunningham, as "*Lozoma*".

**Matoniales** Pichi Sermolli *ex* Reveal, *ord. nov.* based on Matoniaceae C. Presl, *Gefässbündel Farrn* 32. 1847 [Abh. Königl. Böhm. Ges. Wiss. ser. 5, 5:340. 1848]. - T.: *Matonia* R. Brown *ex* Wallich.

**Myrothamnales** Nakai *ex* Reveal, *ord. nov.* based on the description of the type genus *Myrothamnus* Welwitsch by Hooker in Bentham & Hooker, *Gen. Pl.* 1:1005. 1867; Myrothamnaceae Niedenzu, 1891.

**Negripteridales** Pichi Sermolli *ex* Reveal, *ord. nov.* based on Negripteridaceae Pichi Sermolli, *Nuovo Giorn. Bot. Ital. ser. 2*, 53:160. 1946. - T.: *Negripteris* Pichi Sermolli.

**Plagiogyriales** Pichi Sermolli *ex* Reveal, *ord. nov.* based on the original description of *Plagiogyria* Mettenius, *Abhandl. Senkenb. Ges.* 2:265. 1858; Plagiogyriaceae Bower, 1926.

**Platyzomatales** Pichi Sermolli *ex* Reveal, *ord. nov.* based on Platyzomataceae Nakai, *Bull. Natl. Sci. Mus.* 29:4. 1950. - T.: *Platyzoma* R. Brown.

**Rhizophorales** Tieghem *ex* Reveal, *ord. nov.* based on Rhizophoraceae R. Brown in Flinders, *Voy. Terra Austral.* 2:549. 1814 ("Rhizophoreae"). - T.: *Rhizophora* Linnaeus.

**Sciadopityales** Takhtajan *ex* Reveal, *ord. nov.* based on the original description of the type genus *Sciadopitys* Siebold & Zuccarini, *Fl. Jap.* 2:1. 1842; Sciadopityaceae Luerssen, 1877.

**Stromatopteridales** Pichi Sermolli *ex* Reveal, *ord. nov.* based on [Gleicheniaceae] subfam. Stromatopteridoideae Nakai, *Bull. Natl. Sci. Mus.* 29:32. 1950. - T.: *Stromatopteris* Mettenius; Stromatopteridaceae (Nakai) Bierhorst, 1968.

**Tecophilaeales** Traub *ex* Reveal, *ord. nov.* based on Tecophilaeaceae F. Leybold, *Bonplandia* 10:370. 1862, *nom. cons.* - T.: *Tecophilaea* Bertero *ex* L.A. Colla.

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## NEW SUBCLASS AND SUPERORDINAL NAMES FOR EXTANT VASCULAR PLANTS

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### ABSTRACT

One subclass and four superorders proposed by me in 1992 are validated here as the cited validating descriptions cited were not in Latin as required by Art. 36.1 of the *International Code of Botanical Nomenclature*. The new taxa are *Lamiidae*, *Eucommianae*, *Fab-anae*, *Theanae*, and *Zingiberanae*.

**KEY WORDS:** Magnoliophyta, subclass, superorder, nomenclature

In an article published in 1992, I attempted to validate numerous subclass and superordinal names now in current use but failed to follow all of the provisions in the *International Code of Botanical Nomenclature* (Greuter *et al.* 1988). Although all of the validating descriptions (Art. 32.1[c]) cited were validly published (Art. 32.3), I did not realize that Art. 36.1 mandated that after 1 Jan 1935, a name of a new taxon (not defined in the *Code* except partially in Art. 72.1[a]) must be accompanied by a reference to a previously and effectively published Latin description or diagnosis. As a few of the validating descriptions I cited were in English or German, it is necessary to validate the names with a description in Latin. However, unlike the provisions relative to the valid publication of names at and below the rank of family (Art. 41), the Latin description for suprafamilial ranks can be taken from any rank as there are no provisions in the *Code* to the contrary. Accordingly, the following names are proposed again.

**Lamiidae** Takhtajan *ex* Reveal, *subclass. nov.* based on Labiatae A.L. de Jussieu, *Gen. Pl.* 110. 1789, *nom. cons.* - T.: *Lamium* Linnaeus (1753); *Lamiaceae* Lindley (1836).

**Eucommianae** Takhtajan *ex* Reveal, *superord. nov.* based on the original description of the type genus *Eucommia* Oliver in Hooker's Icon. Pl. 20: t. 1950. 1890.

**Fabanae** R. Dahlgren *ex* Reveal, *superord. nov.* based on Class Leguminosae Endlicher, *Gen. Pl.* xlvii, 1253. 1841. – T.: *Faba* P. Miller (1754); Fabaceae Lindley (1836).

**Theanae** Thorne *ex* Reveal, *superord. nov.* based on Class Lamprophyllae Bartling, *Ord. Nat. Pl.* 225, 333. 1830. – T.: *Thea* Linnaeus (1753); Theaceae D. Don (1825).

**Zingiberanae** Takhtajan *ex* Reveal, *superord. nov.* based on Class Scitamineae Bartling, *Ord. Nat. Pl.* 24, 59. 1830. – T.: *Zingiber* G.R. Boehmer, *nom. cons.* (1760); Zingiberidaceae Lindley (1835).

#### ACKNOWLEDGMENT

Thanks are extended to A.L. Takhtajan, B.E. Dutton, and J.H. Wiersema for reviewing the manuscript. Work on ordinal and plant family names in Europe was supported by National Science Foundation Grant BSR-8812816. This is Scientific Article A-6424, Contribution No. 8617, of the Maryland Agricultural Experiment Station and Cooperative Extension Service.

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Reveal, J.L. 1992. Validation of subclass and superordinal names in Magnoliophyta. *Novon* 2:235-237.

## THE CORRECT NAME OF THE NORTHERN EXPRESSION OF *SARRACENIA PURPUREA* L. (SARRACENIACEAE)

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### ABSTRACT

Due to a lectotypification, and an inability to conserve the name and type of a taxon that impacts upon infraspecific nomenclature, the correct name for the northern expression of *Sarracenia purpurea* L. is not var. *purpurea* as traditionally understood but var. *terrae-novae* de la Pylaie. The southern expression of the species, known as var. *venosa* (Raf.) Fernald, must now be named var. *purpurea*.

KEY WORDS: *Sarracenia*, Sarraceniaceae, nomenclature

One of the guiding principles of systematics is that taxonomy drives nomenclature, not the other way around. The example presented here is one of those instances where differences in taxonomic opinion and an unfortunate lectotypification have resulted in a conflicting nomenclature.

In 1840, Rafinesque (p. 33) divided Linnaeus' (1753:510) *Sarracenia purpurea* L. into two species, listing *S. gibbosa* Raf. (under the orthography, *Sarazina*) as a new name for *S. purpurea* and then appended *S. grandiflora* Raf. as an alternative for that. In doing so he established the concept that *S. purpurea* applied to a northern plant that occurred from Canada to Virginia. For the southern expression, Rafinesque proposed *S. venosa* Raf.; this, he said, grew from Virginia to Florida.

*Sarracenia purpurea* was regarded as a widespread, albeit variable species (save for the recognition of *S. heterophylla* A. Eaton at some infraspecific rank) until 1933 when Wherry recognized two subspecies, the northern subsp. *gibbosa* (Raf.) Wherry and the southern subsp. *venosa* (Raf.) Wherry. Fernald (1936:233) subsequently proposed var. *venosa*, and Wherry (1972:146) eventually corrected the name of the northern taxon to the autonym subsp. *purpurea*.

Recognition of two expressions within *Sarracenia purpurea* has not been uniformly accepted. Bell (1949) rejected the distinction, but it was accepted



by Fernald (1950), Gleason (1952), and Gleason & Cronquist (1963, 1991). In Canada, Rousseau (1974) and Taylor & MacBryde (1977) recognized var. *purpurea*, Scoggan (1978) the f. *purpurea*, and other authors (Scoggan 1957; Looman & Best 1979; Porsild & Cody 1980; Moss 1983; Hinds 1986) defined the range of *S. purpurea* so as to exclude that of the southern var. *venosa*. Authors of several recent southeastern United States floras (Radford *et al.* 1964; Duncan & Kartesz 1981; Clewell 1985) have not recognized var. *venosa*, although it was accepted by Murry & Urbatsch (1979). A distinction between the two has long been championed by Schnell (1976, 1979, 1981) and this was accepted by Kartesz & Kartesz (1980).

One of the mysteries associated with the Linnaean herbarium is the lack of Linnaeus' specimens of *Sarracenia*. There was a genus folder but no specimens when James E. Smith purchased the herbarium (Jackson 1907). Linnaeus likely had herbarium material since *S. purpurea* was collected by Kalm (UPS), and the plant had been in cultivation since the early 1600s (Juniper *et al.* 1989:14). Nonetheless, no original Linnaean herbarium material has ever been traced. (The Kalm sheet can not be considered original material as there is no evidence that Linnaeus examined the sheet.)

Without any available specimens, McDaniel (1971:26) lectotypified *Sarracenia purpurea* on a Catesby (1738: t. 70) plate of var. *venosa*, one of only two available elements from which a selection could be made, the other being the Plukenet (1705: t. 376, f. 6; voucher: H.S. 90:59, BM-SL) figure selected by Wherry (1933:2) as the neotype (as "type"; Art. 8.3; Greuter *et al.* 1988) of var. *venosa*. McDaniel, who did not distinguish varieties, recognized that because of his typification, the northern element, if such were distinguished, would have to be called var. *terrae-novae* de la Pylaie (1827:389); however, this name has not been adopted by any modern author.

Before urging the adoption of the de la Pylaie name, should one wish to distinguish between the two expressions, a conservation proposal was prepared and submitted for review by members of the Spermatophyte Committee in the hopes of being able to conserve the name and the type of *Sarracenia purpurea* on the northern expression represented by the Kalm sheet. The argument was that the infraspecific autonym *purpurea* "has been widely and persistently used for a taxon or taxa not including its type ..." (Art. 63) since 1971 when McDaniel lectotypified *S. purpurea* upon the southern var. *venosa*.

In this case, the effect on the rank of the taxon in question was not at the specific level, for which conservation was requested, but at an autonymic infraspecific rank, and then only when a taxonomic distinction is made between two expressions of questionable merit. In this case conservation is not possible as the type of the species (the southern expression) is still representative of the species, and therefore the specific name can not be considered under any provision in the current *Code* (Greuter *et al.* 1988) as *Sarracenia purpurea* has not been misapplied, only a variant of it has been misapplied.

If the proposal could have been adopted, the application of *Sarracenia purpurea* would have continued as currently understood in the popular (e.g., Cheers 1983; Slack 1986; McKeown 1991), garden (Hindle 1991), and technical systematic literature when the species is divided into a northern var. *purpurea* and a southern var. *venosa*. As such a proposal can not even be considered, the northern variant must be called var. *terra-novae* de la Pylaie, a name heretofore not taken up. If one were to recognize the taxon at the subspecific rank, a new combination is necessary.

### ACKNOWLEDGMENTS

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***STREPTOPUS LANCEOLATUS* (AITON) REVEAL, A NEW NAME FOR  
*STREPTOPUS ROSEUS* MICHX. (CONVALLARIACEAE)**

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ABSTRACT

Solander (*in litt.*) proposed *Uvularia lanceolata* for Newfoundland specimens gathered by Banks in 1766. When formally published by Aiton in 1789, references were made to a 1635 Cornut illustration and a 1785 Menzies introduction. The name is lectotypified here on the Banks sheet annotated by Solander, a specimen of *Streptopus roseus* Michaux. The Aiton name is transferred to *Streptopus*, as *S. lanceolatus*, and three new infraspecific combinations are proposed. The name applied to the widespread expression, *S. roseus* variety *perspectus* Fassett, becomes a synonym of variety *lanceolatus*.

KEY WORDS: *Streptopus*, *Uvularia*, nomenclature, typification, Linnaeus

The identity of *Uvularia lanceolata* Aiton (1789:434) has long been doubtful. Authorship of the name is technically attributed to Aiton (Reveal 1985, 1990), but the name and description were proposed by one of his employees, Daniel Solander (1733-1782). Solander's premature death prevented many of his scientific names from being published under his own authorship, and Stafleu & Cowan (1985:721) list no independently authored books, although numerous Solander manuscripts are extant in the Department of Botany Library at The Natural History Museum (BM) in London (Diment & Wheeler 1984).

A review of Solander's notes and specimens at BM has shown that *Uvularia lanceolata* is the earliest available name for *Streptopus roseus* Michaux (1803:201).

In April, 1766, Joseph Banks (1743-1820) set out on his first foreign scientific expedition, traveling aboard the *Niger* to St. Johns, Newfoundland (Carter

1988:32). Banks kept a journal, and recorded therein many of his acquisitions. He collected numerous plant and animal specimens during his month-long (11 May–11 June 1766) stay at St. Johns. On 11 June the *Niger* sailed to Croque Harbor at the northeast tip of the island and lay at anchor for a week (13–19 June). At both sites, Banks collected specimens Solander later annotated *Uvularia lanceolata*.

In Solander's manuscript "slip catalogue" (vol. 8, p. 537, BM) is the following entry:

lanceolata UVULARIA foliis perfoliatis ova-  
to lanceolatis acuminatis.

Polygonatum ramosum flore luteo  
minuj. *Cornut. can. 40. t. 41. Moris. hist.*

Habitat in Terra Labrador America  
septentrionalis

Differt ab *Uvularia perfoliata* 437.2 mscr  
quod Caulis ~~majis~~ ramosior festicet a  
singula ala, quod flores minore, &  
quid folia angustiora & acuminata.

This entry was also included in Solander's unpublished 1767 manuscript, "Descriptions of plants from various parts of the world," copied from the slip catalogue by Herman Diedrich Spöring (Marshall 1978). On the slip is a large "L," which Marshall felt alluded to specimens in the Sloane herbarium (BM-SL), and a large "+" indicating that Solander included the name in Aiton's *Hortus Kewensis*.

I have been unable to find a specimen annotated by Solander with *Uvularia lanceolata* among the more than 300 volumes of dried plants in the Sloane herbarium, but one or more probably exist. Nonetheless, on two Banks sheets now in the general herbarium (BM), Solander wrote this manuscript name. No reference was made to the Banks specimens when the name was proposed in 1789, but under Article 7.4 (Greuter *et al.* 1988), they are still "original material" as Solander examined them prior to publication, and by annotating them with his binomial, he associated the two sheets with the concept of the named taxon.

When Aiton (1789) proposed the name he cited a Cornut (1635:36) name and figure (t. 37) in synonymy with the comment "Introd. 1785, by Mr. Archibald Menzies." The specimen illustrated by Cornut in all likelihood is *Uvularia grandiflora* J.E. Smith, but what Menzies introduced is less certain.



Archibald Menzies (1754–1842), best known as the surgeon-naturalist with Colnett and later Vancouver in the Pacific Northwest, was ship's surgeon aboard HMS *Assistance* on the Halifax station in 1785 and 1786. He was a correspondent of Banks, and no doubt sent Banks seeds; Menzies certainly gave Banks live plants when he returned to England in August, 1786 (Carter 1988:222). I have not found a specimen of either *Uvularia* or *Streptopus* that I can directly attribute to Menzies, nor a cultivated specimen that I can associate with any 1785 introduction. However, there is a Labrador specimen of *Streptopus*, mounted with the Banks collection from St. Johns, that I believe is the Menzies voucher. Lysaght (1971:321) mistakenly attributed the Labrador specimen to Banks, but Banks never collected this specimen in Labrador.

The correct application of the name *Uvularia lanceolata* has long been problematic. Pursh (1814:231) considered it to be the same as *U. grandiflora* whereas Baker (1880:462) placed it in synonymy under *U. perfoliata* Linnaeus. Wilbur (1963:186) expressed a "strong suspicion" that *U. lanceolata* was the first binomial for *U. grandiflora*, but the name "should remain unassigned until authentic specimens are discovered." The discovery Wilbur suggested has now been made, and as a result the following new combinations are required:

***Streptopus lanceolatus* (Aiton) Reveal, *comb. nov.*** BASIONYM: *Uvularia lanceolata* Aiton, *Hort. Kew.* 1:434. 1789. TYPE: CANADA. Newfoundland: in woods near Croque, 13–19 June 1766, *Banks s.n.* (LECTOTYPE [here designated]: BM).

*Streptopus roseus* Michx. var. *perspectus* Fassett, *Rhodora* 37:109. 1935. TYPE: UNITED STATES. New Hampshire: under trees, floor of Tuckerman's Ravine, Mt. Washington, 27 June 1934, *Fassett 16422* (HOLOTYPE: WIS).

*Streptopus roseus* Michx. f. *giganteus* Fassett, *Rhodora* 37:110. 1935. TYPE: CANADA. Quebec: Ile Nue, Archipel de Mingan, 28 July 1926, *Victorin & Rolland 24396* (HOLOTYPE: MT).

Banks does not mention specifically in his journal as having collected *Streptopus lanceolatus* at Croque. Nonetheless, he annotated the lectotype "Newfoundland in woods near Croque," and in his list of plants gathered in 1766, there is an entry that reads (mss. p. 11) "*Uvularia Amplexifolia* Shady Places Croque S<sup>t</sup> Johns".

The lectotype is the widespread phase of the species, which ranges from southern Labrador to the mountains of South Carolina, westward to southern Ontario and Michigan (Fernald 1906; Fassett 1935).

Three other combinations are necessary:

***Streptopus lanceolatus* (Aiton) Reveal var. *curvipes* (Vail) Reveal, *comb. nov.*** BASIONYM: *Streptopus curvipes* Vail in Rydberg, Bull. Torrey Bot. Club 28:267. 1901. *Streptopus roseus* Michx. var. *curvipes* (Vail) Fassett, Rhodora 37:110. 1935. TYPE: CANADA. British Columbia: Asulkan Pass, 4,400 ft., June-July 1897, Z. W. Palmer s.n. (HOLOTYPE: NY).

***Streptopus lanceolatus* (Aiton) Reveal var. *longipes* (Fernald) Reveal, *comb. nov.*** BASIONYM: *Streptopus longipes* Fernald, Rhodora 8:71. 1906. *Streptopus roseus* Michx. var. *longipes* (Fernald) Fassett, Rhodora 37:110. 1935. TYPE: UNITED STATES. Michigan: Marquett Co., Turin, 5 June 1901, Barlow s.n. (HOLOTYPE: GH).

***Streptopus lanceolatus* (Aiton) Reveal var. *roseus* (Michaux) Reveal, *comb. nov.*** BASIONYM: *Streptopus roseus* Michaux, *Fl. Boreali-Amer.* 1:201, t. 18. 1803. *Uvularia rosea* (Michaux) Persoon, *Syn. Pl.* 1:360. 1805. *Hexorima dichotoma* Rafinesque, *Specchio* 1:193. 1814, *nom. illeg.* (Art. 63.1). TYPE: UNITED STATES. Carolina: mountains, Michaux s.n. (HOLOTYPE: P).

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ON THE VALID PUBLICATION OF *COLLINSIA VIOLACEA* NUTTALL  
(SCROPHULARIACEAE)

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ABSTRACT

*Collinsia violacea* was first proposed by Thomas Nuttall in an 1827 textbook; it was later published in an 1835 article in the Transactions of the American Philosophical Society. Subsequent authors have consistently attributed the name to the 1835 reference.

KEY WORDS: *Collinsia*, Scrophulariaceae, nomenclature

While reviewing the first edition of Thomas Nuttall's (1827) textbook for vascular plant family names, I chanced to spot in a paragraph on *Collinsia* the distinctive asterisk Nuttall used to denote new species. After describing the genus and *C. verna*, the type of the genus, Nuttall wrote:

A second, and very similar annual species is found on the banks of the

Arkansa, west of the Mississippi; which I propose to call *Collinsia* \**violacea* from the peculiar hue of the corolla. In this species the capsule contains 8 to 12 seeds.

Nuttall described the flowers of *Collinsia verna* as "beautifully particolored, the upper lip being white, the lower a fine blue." In addition he said the capsule of *C. verna* contained "only 2 or 3 seeds." Clearly, the characterization of the flowers of *C. violacea* as violet and the notation that the capsule contains 8 to 12 seeds is sufficient to validate the name. The valid place of publication and type information is as follows:

*Collinsia violacea* Nuttall, *Intr. Bot.* 131. 1827. - LT.: "On the hills and upland woods of the Arkansas and Red Rivers," probably along the Poteau River above Fort Smith, Le Flore Co., Oklahoma, 26 Apr 1819, Nuttall s.n. (BM!), designated by Pennell (1935:293, as "Type", an Art. 8.4 lectotypification; see Greuter *et al.* 1988).

Pennell (1935) indicated that there was an "isotype" at PH, but I have not seen this sheet.

Until now, the authorship and place of publication for this name has been attributed (Newsom 1929; Pennell 1935) to a later article where Nuttall (1835:179) gave a full and detailed description. Both Newsom and Pennell allude to *Collinsia purpurea* Rafinesque (1824:85) as possibly being an earlier name for *C. violacea*. Pennell even lectotypifies the name on a Dr. Christian Miller "collection from the banks of the Wabash" River in Indiana, outside the known range of *C. violacea*.

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**AUTOMATICALLY TYPIFIED SUPERORDINAL AND ORDINAL NAMES FOR  
THE FLOWERING PLANTS (MAGNOLIOPHYTA) AS RECOGNIZED BY  
THORNE (1992) AND ARRANGED FOLLOWING THE PRINCIPLES OF  
PRIORITY, AUTONYMY, AND THE SUBSTITUTION OF ALTERNATIVE  
NAMES**

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**ABSTRACT**

Using the most recent system of classification for flowering plants (Magnoliophyta) proposed by Thorne (1992), superordinal and ordinal names and their synonyms are arranged according to the principles of priority, autonymy, and the substitution of alternative names.

**KEY WORDS:** Magnoliophyta, nomenclature, classification, ordinal names

**INTRODUCTION**

Names above the rank of family are not subject to the rules of priority (Art. 11.4; Greuter *et al.* 1988). Nonetheless, Thorne (1992) has attempted to apply priority to ordinal names starting with Lindley (1833) even though he was aware that the majority of the names proposed by Lindley had been validly published by Dumortier (1829) four years earlier. The list of names presented below follows Thorne's classification scheme, but adopts a modified principle of priority and the notion of autonymy. The concept of substituting alternative names at the family level (Art. 18.5) is applied to superordinal and ordinal names. Also, I have retained technically illegitimate ordinal and superordinal names if the formerly illegitimate family name upon which they were based has been conserved (see App. IIB).

Thorne (1992) adopted the concept of autonoms for ordinal names even though this is not mandated by the present *Code* for names above the rank

of family. Thus, he took up Magnoliales (1838) rather than the earlier Laurales (1826) within Magnolianaes. I have maintained this principle. Finally, an ordinal name is adopted only if the family name itself is accepted either because a particular family name is conserved (e.g., Saxifragales [1829] over Sedales [1828]) or because of a taxonomic decision (e.g., Asparagales [1838] over Asteliales [1829]). A series of footnotes is appended to the end of the catalogue justifying why a particular name was adopted, or noting names accepted here which are different from those given by Thorne.

The purpose of this exercise is to ascertain the nomenclatural affect of priority on names at the rank of order. If the concept of "names in current use" (Greuter 1991; Hawksworth 1991) is added to the *Code* at the forthcoming International Botanical Congress, then perhaps, in time, this concept can be expanded to include names above the rank of family. Having concentrated recently on vascular plant nomenclature at the family rank and above, I can attest to the difficulty of finding the earliest places of valid publication for these names. Rules in the *Code* are vague for names above the rank of family and will require some revision.

Thorne's (1992) treatment is particularly useful for this nomenclatural experiment in that he recognized fewer superorders and orders than his contemporaries, thereby making the impact of priority more significant on a case-by-case basis. By adopting the principle of priority, but considering it secondary to the principle of autonymy, and then accepting the principle that ordinal names based on alternative family names have equivalent priority as their alternative ordinal names, there is only minimal nomenclatural disruption. The most unfortunate name changes encountered using Thorne's (1992) recent system of classification is that Dioscoreales (1876) must be replaced by Taccales (1829). Problems such as these can be addressed by conservation and/or the establishment of a names in current use list for ordinal names. In short, priority has little significant nomenclature impact upon the established nomenclature of ordinal names.

A catalogue of ordinal names with their full citation is now in its final stages of preparation and review. It is requested that additional names and/or corrections to the dates of publication given here be forwarded to me.

## CATALOGUE OF SUPERORDINAL AND ORDINAL NAMES

### I. Magnolianaes Takhtajan, 1967

*Nelumbonanaes* Takhtajan *ex* Reveal, 1992

*Ranunculanaes* Takhtajan *ex* Reveal, 1992

### 1. Magnoliales Bromhead, 1838<sup>1</sup>

*Laurales* Perleb, 1826

*Aristolochiales* Dumortier, 1829

*Gyrocarpales* Dumortier, 1829

*Monimiales* Dumortier, 1829

*Piperales* Dumortier, 1829  
*Annonales* Lindley, 1833  
*Calycanthales* C. Martius, 1835  
*Asarales* Burnett, 1835  
*Canellales* Cronquist, 1957  
*Illiciales* H.H. Hu *ex* Cronquist,  
 1981

*Austrobaileyales* Takhtajan *ex*  
 Reveal, 1992

*Chloranthales* Conzatti & L.C.  
 Smith *ex* Reveal, 1992

*Eupomatiales* Takhtajan *ex* Re-  
 veal, 1992

*Lactoridales* Takhtajan *ex* Re-  
 veal, 1993

*Winterales* A.C. Smith *ex* Re-  
 veal, 1993

2. *Ceratophyllales* Bischoff,  
 1840

3. *Nelumbonales* Burnett, 1835

4. *Paeoniales* Heintze, 1927  
*Glaucidiales* Takhtajan *ex* Re-  
 veal, 1992

5. *Berberidales* Dumortier, 1829  
*Podophyllales* Dumortier, 1829  
*Ranunculales* Dumortier, 1829  
*Papaverales* Dumortier, 1829  
*Menispermals* Bromhead, 1838  
*Helleborales* Nakai, 1949

II. *Nymphaeanae* Thorne *ex* Re-  
 veal, 1992

6. *Nymphaeales* Dumortier,  
 1829

*Euryalales* H.-L. Li, 1955

III. *Rafflesianae* Thorne *ex* Reveal,  
 1992

7. *Rafflesiales* Oliver, 1895<sup>2</sup>  
*Cytinales* Dumortier, 1829  
*Mitrastemonales* Makino, 1911  
*Hydnorales* Takhtajan *ex* Re-  
 veal, 1992

IV. *Caryophyllanae* Takhtajan, 1967

8. *Caryophyllales* Perleb, 1826

*Amaranthales* Dumortier, 1829

*Cactales* Dumortier, 1829

*Chenopodiales* Dumortier, 1829

*Nyctaginales* Dumortier, 1829

*Portulacales* Dumortier, 1829

*Scleranthales* Dumortier, 1829

*Petiveriales* Lindley, 1833

*Silenales* Lindley, 1833

*Dianthales* Burnett, 1835

*Atriplicales* Horaninow, 1847

*Opuntiales* Willkomm, 1854

V. *Theanae* Thorne *ex* Reveal, 1992

*Lecythidanae* Takhtajan *ex* Re-  
 veal, 1992

*Nepenthanae* Takhtajan *ex* Re-  
 veal, 1992

*Plumbaginanae* Takhtajan *ex*  
 Reveal, 1992

*Polygonanae* Takhtajan *ex* Re-  
 veal, 1992

*Primulanae* R. Dahlgren *ex* Re-  
 veal, 1992

*Sarracenianae* Thorne *ex* Re-  
 veal, 1992

*Dillenianae* Takhtajan *ex* Re-  
 veal & Takhtajan, 1993

9. *Theales* Lindley, 1833<sup>3</sup>

*Hypericales* Dumortier, 1829

*Nepenthales* Dumortier, 1829

*Camelliales* Burnett, 1835

*Illicales* Burnett, 1835

*Sarraceniales* Bromhead, 1838

*Aquifoliales* Senft, 1856

*Elatiniales* Nakai, 1949

*Dilleniales* Hutchinson, 1924

*Medusagynales* Brenan, 1952

*Lecythidales* Cronquist, 1957

*Ancistrocladales* Takhtajan *ex*  
 Reveal, 1992

*Actinidiales* Takhtajan *ex* Re-  
 veal, 1993

*Dioncophyllales* Takhtajan *ex*  
 Reveal, 1992



- Ochnales* Hutchinson *ex* Reveal, 1993  
*Paracryphiales* Takhtajan *ex* Reveal, 1992
10. **Ericales** Dumortier, 1829  
*Vacciniales* Dumortier, 1829  
*Rhodorales* Horaninow, 1847  
*Empetrales* Nakai, 1930
11. **Fouquieriales** Takhtajan *ex* Reveal, 1992
12. **Styracales** Burnett, 1835  
*Sapotales* J.D. Hooker *in* W.H. Harvey, 1868  
*Diospyrales* Prantl, 1874  
*Ebenales* Engler, 1892
13. **Primulales** Dumortier, 1829  
*Samolales* Dumortier, 1829  
*Plumbaginales* Lindley, 1833  
*Myrsinales* Bromhead, 1838
14. **Polygonales** Dumortier, 1829  
*Rumticales* Burnett, 1835
- VI. **Celastranae** Takhtajan, 1967
15. **Celastrales** Baskerville, 1839
- VII. **Malvanae** Takhtajan, 1967  
*Euphorbianae* Takhtajan *ex* Reveal, 1992  
*Rhamnanae* Takhtajan *ex* Reveal, 1992  
*Urticanae* Takhtajan *ex* Reveal, 1992
16. **Malvales** Dumortier, 1829  
*Tiliales* Hutchinson, 1924
17. **Urticales** Dumortier, 1829  
*Ficales* Dumortier, 1829  
*Ulmales* Lindley, 1833
18. **Barbeyales** Takhtajan *ex* Reveal & Takhtajan, 1993
19. **Rhamnales** Dumortier, 1829  
*Elaeagnales* Bromhead, 1838
20. **Euphorbiales** Lindley, 1833  
*Daphnales* Lindley, 1833  
*Crotonales* Horaninow, 1847  
*Thymelaeales* Willkomm, 1854
- Pandales* Engler & Gilg, 1912-1913  
*Simmondsiales* Reveal, 1992
- VIII. **Violanae** R. Dahlgren *ex* Reveal, 1992
21. **Violales** Perleb, 1826  
*Cistales* Reichenbach, 1828  
*Begoniales* Dumortier, 1829  
*Cucurbitales* Dumortier, 1829  
*Datiscales* Dumortier, 1829  
*Passiflorales* Dumortier, 1829  
*Samydales* Dumortier, 1829  
*Turnerales* Dumortier, 1829  
*Bizales* Lindley, 1833  
*Salicales* Lindley, 1833  
*Homaliales* Bromhead, 1838  
*Lacistematales* Baskerville, 1839  
*Tamaricales* Hutchinson, 1924  
*Flacourtiales* Heintze, 1927  
*Caricales* L. Benson, 1957
22. **Brassicales** Bromhead, 1838<sup>4</sup>  
*Resedales* Dumortier, 1829  
*Capparales* Hutchinson, 1924  
*Tovariales* Nakai, 1943  
*Salvadorales* R. Dahlgren *ex* Reveal, 1993
23. **Batales** Engler, 1907
- IX. **Santalanae** Thorne *ex* Reveal, 1992  
*Balanophoranae* R. Dahlgren *ex* Reveal, 1992
24. **Santalales** Dumortier, 1829  
*Anthobolales* Dumortier, 1829  
*Loranthales* Dumortier, 1829  
*Olacales* Bentham, 1862  
*Medusagynales* Brenan, 1952
25. **Balanophorales** Dumortier, 1829  
*Cynomoriales* Burnett, 1835
- X. **Geranianae** Thorne *ex* Reveal, 1992
26. **Linales** Baskerville, 1839
27. **Rhizophorales** Tieghem

- ex* Reveal, 1993
28. **Geraniales** Dumortier, 1829  
*Balsaminales* Lindley, 1833  
*Oxalidales* Heintze, 1927  
*Limnanthales* Nakai, 1930  
*Tropaeolales* Takhtajan *ex* Reveal, 1992
29. **Polygalales** Dumortier, 1829  
*Vochysiales* Dumortier, 1829  
*Malpighiales* C. Martius, 1835
- XI. **Rutanae** Takhtajan, 1967  
*Fabanae* R. Dahlgren *ex* Reveal, 1992
30. **Rutales** Perleb, 1826<sup>5</sup>  
*Papilionales* Batsch, 1802  
*Citrales* Dumortier, 1829  
*Sapindales* Dumortier, 1829  
*Terebinthales* Dumortier, 1829  
*Acerales* Lindley, 1833  
*Coriariales* Lindley, 1833  
*Meliales* Lindley, 1833  
*Connarales* Burnett, 1835  
*Lotales* Burnett, 1835  
*Mimosales* Burnett, 1835  
*Aesculales* Bromhead, 1838  
*Fabales* Bromhead, 1838  
*Burserales* Baskerville, 1839  
*Cassiales* Horaninow, 1847  
*Leitneriales* Engler, 1897  
*Julianales* Engler, 1907  
*Moringales* Nakai, 1943
- XII. **Proteanae** Takhtajan, 1967
31. **Proteales** Dumortier, 1829
- XIII. **Rosanae** Takhtajan, 1967  
*Hamamelidanae* Takhtajan, 1967  
*Juglandanae* Takhtajan *ex* Reveal, 1992  
*Podostemonanae* R. Dahlgren *ex* Reveal, 1992  
*Trochodendranae* Takhtajan *ex* Reveal, 1992
32. **Hamamelidales** Grisebach, 1854
- Trochodendrales* Takhtajan *ex* Cronquist, 1981
- Cercidiphyllales* H.-H. Hu *ex* Reveal, 1993
- Eupteleales* H.-H. Hu *ex* Reveal, 1993
33. **Casuarinales** Lindley, 1833
34. **Balanopales** Engler, 1897  
*Didymelales* Takhtajan, 1967  
*Daphniphyllales* Pulle *ex* Cronquist, 1981  
*Buzales* Takhtajan *ex* Reveal, 1992
35. **Bruniales** Dumortier, 1829  
*Roridulales* Nakai, 1943  
*Geissolomatales* Takhtajan *ex* Reveal, 1992  
*Hydrostachyales* Diels *ex* Reveal, 1993  
*Myrothamnales* Nakai *ex* Reveal, 1993
36. **Juglandales** Dumortier, 1829  
*Myricales* Engler, 1897  
*Rhoipteleales* Novák *ex* Reveal, 1992
37. **Betulales** Burnett, 1835<sup>6</sup>  
*Corylales* Dumortier, 1829  
*Quercuales* Burnett, 1835  
*Fagales* Engler, 1892
38. **Rosales** Perleb, 1826  
*Sanguisorbales* Dumortier, 1829  
*Crossosomatales* Takhtajan *ex* Reveal, 1993
39. **Saxifragales** Dumortier, 1829<sup>7</sup>  
*Sedales* Reichenbach, 1828  
*Crassulales* Lindley, 1833  
*Grossulariales* Lindley, 1833  
*Droserales* Grisebach, 1854  
*Diapensiales* Engler & Gilg, 1924  
*Cephalotales* Nakai, 1943  
*Parnassiales* Nakai, 1943  
*Stylidiales* Takhtajan *ex* Reveal, 1992

40. **Podostemales** Lindley, 1833<sup>8</sup>  
*Marathrales* Dumortier, 1829
41. **Cunoniales** Hutchinson, 1924
- XIV. **Aralianae** Takhtajan, 1967<sup>9</sup>  
*Cornanae* Thorne *ex* Reveal, 1992  
*Eucommianae* Takhtajan *ex* Reveal, 1992  
*Vitanae* Takhtajan *ex* Reveal, 1992
42. **Brexiales** Lindley, 1833<sup>10</sup>  
*Hortensiales* Grisebach, 1854  
*Hydrangeales* Nakai, 1943
43. **Cornales** Dumortier, 1829  
*Vitales* Burnett, 1835  
*Haloragales* Bromhead, 1838  
*Garryales* Lindley, 1846  
*Eucommiales* Nemejc *ex* Cronquist, 1981  
*Aralidiales* Takhtajan *ex* Reveal, 1992  
*Gunnerales* Takhtajan *ex* Reveal, 1992
44. **Pittosporales** Lindley, 1833  
*Byblidales* Nakai *ex* Reveal, 1993
45. **Araliales** Burnett, 1835  
*Angelicales* Burnett, 1835  
*Ammiales* J.K. Small, 1903  
*Apiales* Nakai, 1930  
*Torricelliales* Takhtajan *ex* Reveal, 1992
46. **Dipsacales** Dumortier, 1829  
*Viburnales* Dumortier, 1829  
*Caprifoliales* Lindley, 1833  
*Valerianales* Burnett, 1835  
*Lonicerales* C. Baenitz, 1877  
*Adozales* Nakai, 1949
- XV. **Asteranae** Takhtajan, 1967  
*Campanulanae* Takhtajan *ex* Reveal, 1992
47. **Asterales** Lindley, 1833<sup>11</sup>  
*Ambrosiales* Dumortier, 1829  
*Calycerales* Burnett, 1835
- Carduales* J.K. Small, 1903
48. **Campanulales** Reichenbach 1828  
*Brunoniales* Lindley, 1833  
*Goodeniales* Lindley, 1833
- XVI. **Solananae** R. Dahlgren *ex* Reveal, 1992
49. **Solanales** Dumortier, 1829  
*Boraginales* Dumortier, 1829  
*Convolvulales* Dumortier, 1829  
*Nolanales* Lindley, 1833  
*Polemoniales* Bromhead, 1838  
*Echiales* Lindley, 1846
- XVII. **Loasanae** R. Dahlgren *ex* Reveal, 1992
50. **Loasales** Bessey, 1907
- XVIII. **Myrtanae** Takhtajan, 1967
51. **Myrtales** Reichenbach, 1828  
*Onagrales* Reichenbach, 1828  
*Penaeales* Lindley, 1833  
*Oenotherales* Bromhead, 1838  
*Combretales* Baskerville, 1839  
*Lythrales* Oliver, 1895  
*Melastomatales* Oliver, 1895
- XIX. **Lamianae** Takhtajan, 1967<sup>12</sup>  
*Gentiananae* Thorne *ex* Reveal, 1992
52. **Rubiales** Dumortier, 1829  
*Asclepiadales* Dumortier, 1829  
*Cinchonales* Lindley, 1833  
*Gentianales* Lindley, 1833  
*Loganiales* Lindley, 1833  
*Apocynales* Bromhead, 1838  
*Galiales* Bromhead, 1838  
*Vincales* Horaninow, 1847  
*Chironiales* Grisebach, 1854  
*Theligonales* Nakai, 1942
53. **Lamiales** Bromhead, 1838<sup>13</sup>  
*Callitrichales* Dumortier, 1829  
*Gesneriales* Dumortier, 1829  
*Globulariales* Dumortier, 1829  
*Jasminales* Dumortier, 1829  
*Pinguicularales* Dumortier, 1829

- Rhinanthales* Dumortier, 1829  
*Veratrales* Dumortier, 1829  
*Acanthales* Lindley, 1833  
*Bignoniales* Lindley, 1833  
*Lentibulariales* Lindley, 1833  
*Oleales* Lindley, 1833  
*Plantaginales* Lindley, 1833  
*Scrophulariales* Lindley, 1833  
*Hippuridales* Burnett, 1835  
*Menthales* Burnett, 1835  
*Ligustrales* Bischoff, 1840  
*Verbenales* Horaninow, 1847
- IX. *Lilianae* Takhtajan, 1967
54. *Liliales* Perleb, 1826  
*Colchicales* Dumortier, 1829  
*Iridales* Dumortier, 1829  
*Paridales* Dumortier, 1829  
*Ixiales* Lindley, 1836  
*Alstroemeriales* Hutchinson, 1934  
*Melanthiales* R. Dahlgren *ex* Reveal, 1992
55. *Burmanniiales* Heintze, 1927
56. *Asparagales* Bromhead, 1838<sup>14</sup>  
*Asteliales* Dumortier, 1829  
*Narcissales* Dumortier, 1829  
*Amaryllidales* Bromhead, 1840  
*Agavales* Hutchinson, 1934  
*Alliales* Traub, 1972  
*Hanguanales* R. Dahlgren *ex* Reveal, 1992  
*Velloziales* R. Dahlgren *ex* Reveal, 1992
57. *Taccales* Dumortier, 1829<sup>15</sup>  
*Tamales* Dumortier, 1829  
*Smilacales* Lindley, *Niz. Pl.* 23. 1833  
*Dioscoreales* J.D. Hooker, 1876
58. *Orchidales* Dumortier, 1829
- XI. *Hydatellanae* Takhtajan *ex* Reveal, 1992
59. *Hydatellales* Cronquist *in* Takhtajan, 1980
- XXII. *Triuridanae* Thorne *ex* Reveal, 1992
60. *Triuridales* J.D. Hooker *in* Le Maout & Decaisne, 1876
- XXIII. *Alismatanae* Takhtajan, 1967  
*Butomanae* Takhtajan *ex* Reveal, 1992  
*Najadanae* Takhtajan *ex* Reveal, 1992
61. *Alismatales* Dumortier, 1829<sup>16</sup>  
*Najadales* Reichenbach, 1828  
*Hydrocharitales* Dumortier, 1829  
*Butomales* Hutchinson, 1934  
*Vallisneriales* Nakai, 1949  
*Elodeales* Nakai, 1950
62. *Potamogetonales* Dumortier, 1829  
*Aponogetonales* Hutchinson, 1934  
*Juncaginiales* Hutchinson, 1934  
*Cymodoceales* Nakai, 1943  
*Posidoniales* Nakai, 1943  
*Zosteriales* Nakai, 1943  
*Ruppiales* Nakai, 1950  
*Scheuchzeriales* B. Boivin, 1956
- XXIV. *Aranae* Thorne *ex* Reveal, 1992  
*Cyclanthanae* Thorne *ex* Reveal, 1992
63. *Arales* Dumortier, 1829
64. *Cyclanthales* Nakai, 1930
65. *Acorales* Burnett, 1835
- XXV. *Pandananae* Thorne *ex* Reveal, 1992
66. *Pandanales* Lindley, 1833
- XXVI. *Arecanae* Takhtajan, 1967
67. *Arecales* Bromhead, 1840<sup>17</sup>  
*Phoenicales* Burnett, 1835.  
*Cocosales* Nakai, 1930
- XXVII. *Commelinanae* Takhtajan, 1967  
*Bromelianae* R. Dahlgren *ex* Reveal, 1992  
*Juncanae* Takhtajan, 1967



- Pontederianae* Takhtajan *ex* Reveal, 1992  
*Typhanæ* Thorne *ex* Reveal, 1992  
*Zingiberanæ* Takhtajan *ex* Reveal, 1992
68. **Bromeliales** Dumortier, 1829  
 69. **Philydrales** Dumortier, 1829  
*Pontederiales* J.D. Hooker, 1876  
*Haemodorales* Hutchinson, 1934  
 70. **Typhales** Dumortier, 1829  
 71. **Cannales** Dumortier, 1829<sup>18</sup>  
*Amomales* Lindley, 1833  
*Musales* Burnett, 1835
- Zingiberales* Grisebach, 1854  
 72. **Commelinales** Dumortier, 1829  
*Ephemerales* Burnett, 1835  
*Xyridales* Lindley, 1846  
*Eriocaulales* Nakai, 1930  
*Mayacales* Nakai, 1943  
 73. **Juncuales** Dumortier, 1829  
*Cyperales* Burnett, 1835  
 74. **Poales** Burnett, 1835  
*Graminales* Dumortier, 1829  
*Avenales* Bromhead, 1838  
*Restionales* Perleb, 1838

## NOTES

<sup>1</sup> The later Magnoliales (1838) is adopted over Laurales (1826) according to the principle of autonymy.

<sup>2</sup> The later Rafflesiales (1895) is adopted over Cytinales (1829) according to the principle of autonymy.

<sup>3</sup> The later Theales (1833) is adopted over the earlier Hypericales (1829) and Nepenthales (1829) according to the principle of autonymy.

<sup>4</sup> Brassicales (1838) is adopted over Resedales (1829) as Brassicales is considered to be an alternative name for the descriptive ordinal name, Cruciferae proposed by Perleb in 1826.

<sup>5</sup> Rutales (1826) is retained over the earlier Papilionales (1802) according to the principle of autonymy.

<sup>6</sup> Thorne used Betulales (1835), a later name than Corylales (1829), but as he did not accept Corylaceae, this name being rejected if combined with Betulaceae (App. IIB; Greuter *et al.* 1988), Betulales is retained.

<sup>7</sup> Saxifragales (1829) is retained, rather than Sedales (1828) because Thorne did not accept Sedaceae.

<sup>8</sup> Podostemales (1833) is retained, rather than Marathrales (1829) because Thorne did not accept Marathraceae.

<sup>9</sup> Aralianae (1967) has priority over Cornanae (1992), the name adopted by Thorne.

<sup>10</sup> Brexiales (1833) has priority over Hydrangeales (1943), the name adopted by Thorne.

<sup>11</sup> Asterales (1833) is adopted, rather than Ambrosiales (1829), according to the principle of autonymy and because Asteraceae is conserved over Ambrosiaceae (App. IIB; Greuter *et al.* 1988).

<sup>12</sup> Lamianae (1967) has priority over Gentiananae (1992), the name adopted by Thorne.

<sup>13</sup> Lamiales (1838) is adopted over other competing names proposed in 1829 as Lamiales is an autonym of Lamianae. It may also be retained because Lamiales is an alternative name for the descriptive ordinal name, Labiatae, proposed by Dumortier in 1829. In any case, Scrophulariales (1833), adopted by Thorne, is a latter name.

<sup>14</sup> Asparagales (1838) is retained, rather than Asteliales (1829) because Thorne did not accept Asteliaceae.

<sup>15</sup> Taccales (1829) has priority over both Smilacales (1833) and Dioscoreales (1876). The latter name was adopted by Thorne.

<sup>16</sup> The later Alismatales (1829) is adopted over Najadales (1828) according to the principle of autonymy.

<sup>17</sup> Arecales (1840) is adopted over Phoenicales (1835) because Arecales is considered to be an alternative name for the descriptive ordinal name, Palmae, proposed by Perleb in 1826, and Phoenicaceae was not accepted by Thorne.

<sup>18</sup> Cannales (1829) has priority over Zingiberales (1854), the name adopted by Thorne, as does Musales (1835).

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**A SPLITTER'S GUIDE TO THE HIGHER TAXA OF THE FLOWERING PLANTS  
(MAGNOLIOPHYTA) GENERALLY ARRANGED TO FOLLOW THE SEQUENCE  
PROPOSED BY THORNE (1992) WITH CERTAIN MODIFICATIONS**

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**ABSTRACT**

Using the most recent system of classification for flowering plants (Magnoliophyta) proposed by Thorne (1992b) and generally following his sequence of names but with the addition of the family names now in current use, a family system is proposed that purposefully splits the subclasses, superorders, orders, and families into small units thereby constructing a "splitter's" guide to the higher taxa of Magnoliophyta. The resulting classification recognizes 14 subclasses, 63 superorders, 248 orders, and 685 families.

**KEY WORDS:** Magnoliophyta, nomenclature, classification.

**INTRODUCTION**

Since 1959, considerable attention has been given to the classification of the flowering plants, with a large number of taxa recognized (Bedell & Reveal 1982a, b; Benson 1957; Boivin 1956; Brummitt 1992; Cronquist 1957, 1961, 1968, 1981, 1988; Cronquist *et al.* 1966; G. Dahlgren 1989a, b; R. Dahlgren 1975, 1980, 1983; R. Dahlgren & Bremer 1985; R. Dahlgren & Clifford 1982; R. Dahlgren *et al.* 1981, 1985; Deyl 1955; Dostál 1957; Ehrendorfer 1983; Engler 1964; Erdtman 1952, 1966; Gibbs 1974; Goldberg 1986, 1989; Gunn *et al.* 1992; Heywood 1978; Huber 1969; Hutchinson 1959, 1969, 1973; Kimura 1953, 1956; Mabberley 1987; Novák 1954, 1961; Pulle 1952; Rouleau 1981; Soó 1953, 1961, 1967; Stebbins, 1974; Takhtajan 1959, 1970, 1973, 1980, 1983, 1985, 1986, 1987; Thorne 1974, 1976, 1977, 1981, 1983, 1992a, 1992b; Willis 1973). Concomitant with this attention has been the realization that botanical



nomenclature ought to be stabilized as much as possible insofar as nomenclatural matters are concerned. As a result, the botanical community is now considering the concept of "names in current use" (NCU), and to that end, lists of proposed names have been circulated for comment in anticipation of a formal publication of protected names in early 1993.

My own efforts on this task have concentrated on vascular plant family names in collaboration with Dr. Ruurd D. Hoogland of the Laboratoire de Phanérogamie, Muséum National d'Histoire naturelle in Paris. To ascertain the taxonomic impact of protecting family names, we have worked closely with Richard K. Brummitt (K), the late Arthur Cronquist (NY), Aaron Goldberg (US), Armen L. Takhtajan (LE), Robert F. Thorne (RSA), and John Wiersema (USDA). To that end we have been able to resolve potential nomenclatural conflicts. The need to resolve the nomenclatural morass above the rank of family is no less important than that at the family rank and below, and while priority is not required above the rank of family, the need to have validly published names is mandated (Reveal 1992a, 1992b, 1993) and the need for a stabilized nomenclature even at these higher ranks is gradually being recognized.

In the following summary of the flowering plants (Magnoliophyta), I have adopted the general scheme proposed by Thorne (1992b), and included therein all of the proposed NCU family names. To this I have added class, subclass, superordinal, and ordinal names. I have adopted 1966 as the starting date for subclass and superordinal names, and 1789 as the starting date for ordinal and family names. To Thorne's linear arrangement of superorders, orders and families, I have added the rank of subclass used by Cronquist (1981) and Takhtajan (1987). Furthermore, as the family list accounts for all family names now in current use, I have also attempted to include all subclass, superordinal, and ordinal names now in current use. The philosophy behind the application of priority to these higher names is outlined elsewhere (Reveal 1993).

The consequences of adopting, or not adopting, the proposal put forth by Greuter (1991) regarding "names in current use" (NCU) are not all that serious insofar as flowering plant family names because so many of these names are already protected (Reveal & Hoogland, 1991). Conservation, as traditionally applied to flowering plant family names, has been to ensure that certain names are used instead of others, but not authorship or place of publication. Greuter's proposal would now protect the bibliographic information as well. Should the NCU proposals fail, we will have to editorially correct the authorship and/or bibliographic references of nearly 125 currently conserved family names on Appendix IIB of the *Code* (Greuter *et al.* 1988). And, as may be seen from the catalogue below, if the NCU proposals fail there will be a need to conserve at least ten additional names just to retain certain nonconserved names now in current use.

## CATALOGUE OF THE HIGHER TAXA OF MAGNOLIOPHYTA

Magnoliophyta Cronquist, Takhtajan, &amp; Zimmermann, 1966

Magnoliopsida Cronquist, Takhtajan, &amp; Zimmermann, 1966

I. Magnoliidae Novák *ex* Takhtajan, 1967A. Magnoliana *ex* Takhtajan, 19671. Winterales A.C. Smith *ex* Reveal1. Winteraceae R. Brown *ex* Lindley, 1830, *nom. cons.*

2. Takhtajaniaceae (J. Leroy) J. Leroy, 1980

2. Illiciales H.-H. Hu *ex* Cronquist, 19813. Illiciaceae (Candolle) A.C. Smith, 1947, *nom. cons.*4. Schisandraceae Blume, 1830, *nom. cons.*

3. Magnoliales Bromhead, 1837

5. Magnoliaceae A.L. Jussieu, 1789, *nom. cons.*

6. Liriodendraceae Barkley, 1975

7. Degeneriaceae I. Bailey & A.C. Smith, 1942, *nom. cons.*8. Himantandraceae Diels, 1917, *nom. cons.*4. Eupomatiales Takhtajan *ex* Reveal, 19929. Eupomatiaceae Endlicher, 1841, *nom. cons.*

5. Annonales Lindley, 1833

10. Annonaceae A.L. Jussieu, 1789, *nom. cons.**Hornschuchiaceae* J. Agardh, 1858*Monodoraceae* J. Agardh, 1858

6. Aristolochiales Dumortier, 1829

*Asarales* Burnett, 183511. Aristolochiaceae A.L. Jussieu, 1789, *nom. cons.**Asaraceae* Ventenat, 179912. Myristicaceae R. Brown, 1810, *nom. cons.*

7. Canellales Cronquist, 1957

13. Canellaceae C. Martius, 1832, *nom. cons.**Winteranaceae* Warburg, 18958. Austrobaileyales Takhtajan *ex* Reveal, 199214. Austrobaileyaceae (Croizat) Croizat, 1943, *nom. cons.*

9. Monimiales Dumortier, 1829

15. Amborellaceae Pichon, 1948, *nom. cons.*16. Trimeniaceae (Janet R. Perkins & Gilg) Gibbs, 1917, *nom. cons.*

17. Hortoniaceae (Janet R. Perkins) A.C. Smith, 1971

18. Monimiaceae A.L. Jussieu, 1809, *nom. cons.*

19. Atherospermataceae R. Brown, 1814

20. Siparunaceae (A. de Candolle) Schodde, 1970

21. Gomortegaceae Reiche, 1896, *nom. cons.*

10. Calycanthales C. Martius, 1835

22. Idiospermaceae S.T. Blake,

- 1972
23. Calycanthaceae Lindley, 1819, *nom. cons.*  
*Chimonanthaceae* Perleb, 1838  
*Butneriaceae* Barnhart, 1895, *nom. illeg.*
11. Laurales Perleb, 1826
24. Lauraceae A.L. Jussieu, 1789, *nom. cons.*  
*Perseaceae* Horaninow, 1834  
25. Cassythaceae Bartling *ex* Lindley, 1833, *nom. cons.*  
26. Hernandiaceae Blume, 1826, *nom. cons.*  
*Illigeraceae* Blume, 1833
12. Gyrocarpales Dumortier, 1829
27. Gyrocarpaceae Dumortier, 1829.
13. Chloranthales Conzatti & L.C. Smith *ex* Reveal, 1992
28. Chloranthaceae Blume, 1827, *nom. cons.*  
*Hedyosmaceae* Caruel, 1881
14. Lactoridales Takhtajan *ex* Reveal, 1992
29. Lactoridaceae Engler, 1888, *nom. cons.*
15. Piperales Dumortier, 1829
30. Saururaceae Richard *ex* E. Meyer, 1927, *nom. cons.*  
31. Piperaceae C. Agardh, 1824, *nom. cons.*  
32. Peperomiaceae A.C. Smith, 1981
- B. Nelumbonanae Takhtajan *ex* Reveal, 1992
16. Ceratophyllales Bischoff, 1840
33. Ceratophyllaceae Gray, 1821, *nom. cons.*
17. Nelumbonales Burnett, 1835
34. Nelumbonaceae (Candolle) Dumortier, 1829, *nom. cons.*
- C. Nymphaeanae Thorne *ex* Reveal, 1992
18. Nymphaeales Dumortier, 1829  
*Euryalales* H.L. Li, 1955
35. Cabombaceae A. Richard, 1828, *nom. cons.*  
*Hydropeltidaceae* (Candolle) Dumortier, 1822
36. Nymphaeaceae R.A. Salisbury, 1805, *nom. cons.*
37. Euryalaceae J. Agardh, 1858.
38. Barclayaceae H.L. Li, 1955
- D. Rafflesianae Thorne *ex* Reveal, 1992
19. Hydnorales Takhtajan *ex* Reveal, 1992
39. Hydnoraceae C. Agardh, 1821, *nom. cons.*
20. Mitrastemonales Makino, 1911
40. Mitrastemonaceae Makino, 1911, *nom. cons.*
21. Rafflesiales Oliver, 1895  
*Cytinales* Dumortier, 1829
41. Cytinaceae (Brongniart) A. Richard, 1824
42. Apodanthaceae (R. Brown) Tieghem *ex* Takhtajan, 1987
43. Rafflesiaceae Dumortier, 1829, *nom. cons.*
- II. Ranunculidae Takhtajan *ex* Reveal, 1992
- E. Ranunculanae Takhtajan *ex* Reveal, 1992
22. Paeoniales Heintze, 1927
44. Paeoniaceae F. Rudolphi, 1830, *nom. cons.*
23. Glaucidiales Takhtajan *ex* Reveal, 1992
45. Glaucidiaceae Tamura, 1972
24. Menispermiales Bromhead, 1838

46. Menispermaceae A.L. Jussieu, 1789, *nom. cons.*  
*Pseliaceae* Rafinesque, 1838
47. Lardizabalaceae Decaisne, 1839, *nom. cons.*
48. Sargentodoxaceae Stapf ex Hutchinson, 1926, *nom. cons.*
25. Podophyllales Dumortier, 1829
49. Podophyllaceae Candolle, 1821, *nom. cons.*  
*Diphylleaceae* Schultz-Schultzenstein, 1832
50. Leonticaceae Berchtold & J. Presl, 1820
26. Berberidales Dumortier, 1829
51. Berberidaceae A.L. Jussieu, 1789, *nom. cons.*
52. Nandinaceae Horaninow, 1834.
27. Ranunculales Dumortier, 1829  
*Helleborales* Nakai, (1949)
53. Hydrastidaceae Martinov, 1820.
54. Thalictaceae Rafinesque, 1815
55. Ranunculaceae A.L. Jussieu, 1789, *nom. cons.*  
*Anemonaceae* Vest, 1818  
*Clematidaceae* Martinov, 1820
56. Helleboraceae Vest, 1818  
*Calthaceae* Martinov, 1820  
*Actaeaceae* Rafinesque, 1828  
*Nigellaceae* J. Agardh, 1858
57. Circaeasteraceae Hutchinson, 1926, *nom. cons.*
58. Kingdoniaceae A.S. Foster ex Airy Shaw, 1965
28. Papaverales Dumortier, 1829
59. Chelidoniaceae Martinov, 1820
60. Eschscholtziaceae Seringe, 1847
61. Papaveraceae A.L. Jussieu, 1789, *nom. cons.*
62. Platystemonaceae (W.R. Ernst) A.C. Smith, 1971
63. Pteridophyllaceae (Murbeck) Nakai ex Reveal & Hoogland, 1991
64. Hypocoaceae H.M. Willkomm & J.M.C. Lange, 1880
65. Fumariaceae Candolle, 1821, *nom. cons.*  
*Corydalaceae* Giseke, 1792, *nom. illeg.*
- III. Caryophyllidae Takhtajan, 1967  
 F. Caryophyllanae Takhtajan, 1967
29. Caryophyllales Perleb, 1826  
*Scleranthales* Dumortier, 1829  
*Silenales* Lindley, 1833  
*Dianthales* Burnett, 1835
66. Alsinateae (Candolle) Bartling, 1825, *nom. cons.*  
*Stellariaceae* Dumortier, 1822
67. Illecebraceae R. Brown, 1810, *nom. cons.*  
*Paronychiaceae* A.L. Jussieu, 1815
- Scleranthaceae* Berchtold & J. Presl, 1820  
*Herniariaceae* Martinov, 1820
68. Caryophyllaceae A.L. Jussieu, 1789, *nom. cons.*  
*Cerastiaceae* Vest, 1818  
*Dianthaceae* Vest, 1818  
*Ortegaceae* Martinov, 1820  
*Telephiaceae* Martinov, 1820  
*Saginaceae* Sprengel ex Weinmann, 1824  
*Silenaceae* (Candolle) Bartling, 1825
30. Portulacales Dumortier, 1829
69. Portulacaceae A.L. Jussieu, 1789, *nom. cons.*



- Montiaceae* Rafinesque, 1820
70. *Hectorellaceae* Philipson & Skipworth, 1961
71. *Basellaceae* Moquin-Tandon, 1840, *nom. cons.*
- Anrederaceae* J. Agardh, 1858
- Ullucaceae* Nakai, 1942
72. *Didiereaceae* Drake, 1903, *nom. cons.*
31. *Cactales* Dumortier, 1829
- Opuntiales* Willkomm, 1854
73. *Cactaceae* A.L. Jussieu, 1789, *nom. cons.*
- Opuntiaceae* Martinov, 1820
- Cereaceae* Candolle & Sprengel, 1821
32. *Nyctaginales* Dumortier, 1829
- Petiveriales* Lindley, 1833
74. *Phytolaccaceae* R. Brown, 1818, *nom. cons.*
- Sarcocaceae* Rafinesque, 1837
75. *Gisekiaceae* (Endlicher) Nakai, 1942
76. *Petiveriaceae* C. Agardh, 1824
- Rivinaceae* C. Agardh, 1824
- Hilleriaceae* Nakai, 1942
- Seguieriaceae* Nakai, 1942
77. *Agdestidaceae* Nakai, 1942
78. *Barbeuiaceae* Nakai, 1942
79. *Achatocarpaceae* Heimerl, 1934, *nom. cons.*
80. *StegnospERMATACEAE* (A. Richard) Nakai, 1942
81. *Nyctaginaceae* A.L. Jussieu, 1789, *nom. cons.*
- Jalapaceae* Batsch, 1802
- Allioniaceae* Horaninow, 1834
- Bougainvilleaceae* J. Agardh, 1858
- Pisoniaceae* J. Agardh, 1858
- Mirabilidaceae* W. Oliver, 1936
82. *Aizoaceae* F. Rudolphi, 1830, *nom. cons.*
- Ficoideaceae* A.L. Jussieu, 1789
- Galeniaceae* Rafinesque, 1819
- Sesuvaceae* Horaninow, 1834
83. *Mesembryanthemaceae* Fenzl 1836
- Mesembryaceae* Dumortier, 1829, *nom. illeg.*
84. *Tetragoniaceae* Nakai, 1942, *nom. cons.*
85. *Halophytaceae* Soriano, 1984
86. *Molluginaceae* Hutchinson, 1926, *nom. cons.*
- Pharnaceaceae* Martinov, 1820
- Corrigiolaceae* (Dumortier) Dumortier, 1829
- Glinaceae* Dumortier, 1829
- Adenogrammaceae* (Fenzl) Nakai 1942
- Polpodaceae* (Fenzl) Nakai, 1942
33. *Chenopodiales* Dumortier, 1829
- Atriplicales* Horaninow, 1847
87. *Dysphaniaceae* Pax, 1927, *nom. cons.*
88. *Chenopodiaceae* Ventenat, 1799, *nom. cons.*
- Atriplicaceae* A.L. Jussieu, 1789
- Corispermaceae* Link, 1829
- Betaceae* Burnett, 1835
- Blitaceae* Adanson ex Post & Kuntze, 1903
89. *Salicorniaceae* Martinov, 1820
90. *Salsolaceae* Moquin-Tandon, 1849
34. *Amaranthales* Dumortier, 1829
91. *Amaranthaceae* A.L. Jussieu, 1789, *nom. cons.*
- Celosiaceae* Martinov, 1820
- Achyranthaceae* Rafinesque, 1837

- Gomphrenaceae* Rafinesque, 1837  
*Deeringiaceae* J. Agardh, 1858  
 IV. Dilleniidae Takhtajan *ex* Reveal & Takhtajan, 1993  
*G. Dilleniaceae* Takhtajan *ex* Reveal & Takhtajan, 1993  
 35. Dilleniales Hutchinson, 1924  
   92. *Dilleniaceae* R.A. Salisbury, 1807, *nom. cons.*  
*Soramiaceae* Martinov, 1820  
*Hibbertiaceae* J. Agardh, 1858  
 36. Actinidiales Takhtajan *ex* Reveal, 1992  
   93. *Actinidiaceae* Hutchinson, 1926, *nom. cons.*  
   94. *Saurauaceae* J. Agardh, 1858, *nom. cons.*  
 37. Paracryphiales Takhtajan *ex* Reveal, 1992  
   95. *Paracryphiaceae* Airy Shaw, 1965  
 H. Theanae Thorne *ex* Reveal, 1992  
 38. Theales Lindley, 1833  
*Camelliales* Burnett, 1835  
   96. *Stachyuraceae* J. Agardh, 1858, *nom. cons.*  
   97. *Theaceae* D. Don, 1825, *nom. cons.*  
*Camelliaceae* Candolle, 1816  
*Ternstroemiaceae* Mirbel *ex* Candolle, 1816  
*Gordoniaceae* (Candolle) Sprengel, 1826  
*Malachodendraceae* J. Agardh, 1858, *nom. illeg.*  
 98. *Sladeniaceae* (Gilg & Werdemann) Airy Shaw, 1965  
 99. *Asteropeiaceae* (Szyszyłowicz) Takhtajan *ex* Reveal & Hoogland, 1990.  
 100. *Tetrameristaceae* Hutchinson, 1959  
 101. *Pellicieraceae* (Triana & Planchon) L. Beauvisage *ex* Bullock, 1959  
 102. *Chrysobalanaceae* R. Brown, 1818, *nom. cons.*  
*Licaniaceae* Martinov, 1820  
*Hirtellaceae* Horaninow, 1847  
 103. *Symplocaceae* Desfontaines, 1820, *nom. cons.*  
 104. *Caryocaraceae* Szyszyłowicz, 1893, *nom. cons.*  
*Rhizobolaceae* Candolle, 1824, *nom. illeg.*  
 105. *Marcgraviaceae* Choisy, 1824, *nom. cons.*  
 106. *Oncothecaceae* Kobuski *ex* Airy Shaw, 1965  
 39. Aquifoliales Senft, 1856  
 107. *Aquifoliaceae* Bartling, 1830, *nom. cons.*  
*Illicaceae* Berchtold & J. Presl, 1820  
 108. *Phellinaceae* (Loesener) Takhtajan, 1967  
 109. *Sphenostemonaceae* P. Royen & Airy Shaw, 1972  
 40. Ochnales Hutchinson *ex* Reveal, 1992  
   110. *Lophiraceae* Loudon, 1830  
   111. *Sauvagesiaceae* (Gingins *ex* Candolle) Dumortier, 1829  
   112. *Ochnaceae* Candolle, 1811, *nom. cons.*  
*Gomphiaceae* Candolle *ex* Schnizlein, 1843-1870  
*Luxemburgiaceae* Tieghem *ex* Solereder, 1908  
 113. *Quiinaceae* Choisy *ex* Engler, 1888, *nom. cons.*  
 114. *Scytopetalaceae* Engler, 1897, *nom. cons.*  
*Rhaptopetalaceae* Tieghem *ex* Solereder, 1908  
 115. *Strasburgeriaceae* En-

- gler & Gilg, 1924, *nom. cons.*
41. Medusagynales Brenan, 1952
116. Medusagynaceae Engler & Gilg, 1924, *nom. cons.*
42. Ancistrocladales Takhtajan *ex* Reveal, 1992
117. Ancistrocladaceae Planchon *ex* Walpers, 1851, *nom. cons.*
43. Dioncophyllales Takhtajan *ex* Reveal, 1993
118. Dioncophyllaceae (Gilg) Airy Shaw, 1952, *nom. cons.*
44. Hypericales Dumortier, 1829
119. Bonnetiaceae (Bartling) L. Beauvisage *ex* Nakai, 1948
120. Clusiaceae Lindley, 1836, *nom. cons.*
- Guttiferae* A.L. Jussieu, 1789, *nom. cons.*; *nom. alt.*
- Garciniaceae* Bartling, 1830
- Cambogiaceae* Horaninow, 1834
- Calophyllaceae* J. Agardh, 1858
121. Hypericaceae A.L. Jussieu, 1789, *nom. cons.*
- Ascyraceae* Plenck, 1796
45. Elatinales Nakai, 1949
122. Elatinaceae Dumortier, 1829, *nom. cons.*
- Cryptaceae* Rafinesque, 1820
- Alsinastraceae* Ruprecht *ex* Burbani, 1901
- I. Nepenthanae Takhtajan *ex* Reveal, 1992
46. Nepenthales Dumortier, 1829
123. Nepenthaceae Dumortier, 1829, *nom. cons.*
- J. Lecythidanae Takhtajan *ex* Reveal, 1992
47. Lecythidales Cronquist, 1957
124. Barringtoniaceae F. Rudolphi, 1830, *nom. cons.*
125. Foetidaceae (Nidenzu) Airy Shaw, 1965
126. Napoleonaeaceae A. Richard, 1827
- Belvisiaceae* R. Brown, 1821, *nom. illeg.*
127. Lecythidaceae Poiteau, 1825, *nom. cons.*
- Gustaviaceae* Burnett, 1835
128. Asteranthaceae Knuth, 1939, *nom. cons.*
- K. Sarracenianae Thorne *ex* Reveal, 1992
48. Sarraceniales Bromhead, 1838
129. Sarraceniaceae Dumortier, 1829, *nom. cons.*
- 129a. Heliamporaceae Chrtak, Slavíková, & Studicka, 1992
- L. Ericanae Takhtajan, 1967
49. Ericales Dumortier, 1829
- Vacciniales* Dumortier, 1829
130. Pentaphylacaceae Engler, 1897, *nom. cons.*
131. Clethraceae Klotzsch, 1851, *nom. cons.*
132. Cyrillaceae Endlicher, 1841, *nom. cons.*
133. Ericaceae A.L. Jussieu, 1789, *nom. cons.*
- Rhododendraceae* A.L. Jussieu, 1789
- Rhodoraceae* Ventenat, 1799
- Azaleaceae* Vest, 1818
- Ledaceae* Link, 1821
- Menziesiaceae* Klotzsch, 1851
- Salazidaceae* J. Agardh, 1858
- Diplarchaceae* Klotzsch, 1860
134. Vacciniaceae Candolle *ex* Gray, 1821, *nom. cons.*
- Andromedaceae* (Endlicher) Schneizlein, 1843-1870
- Siphonandraceae* Klotzsch, 1851, *nom. illeg.*
- Arbutaceae* J. Agardh, 1858

- Arctostaphylaceae* J. Agardh, 1858  
 135. *Pyrolaceae* Dumortier, 1829, *nom. cons.*  
 136. *Monotropaceae* Nuttall, 1818, *nom. cons.*  
*Hypopityaceae* Link, 1829  
 137. *Epacridaceae* R. Brown, 1810, *nom. cons.*  
*Stypheliaceae* Horaninow, 1834  
 138. *Prionotaceae* Hutchinson, 1969  
 50. *Empetrales* Nakai, 1930  
 139. *Empetraceae* Gray, 1821, *nom. cons.*  
 51. *Fouquieriales* Takhtajan *ex* Reveal, 1992  
 140. *Fouquieriaceae* Candolle, 1828, *nom. cons.*  
 52. *Ebenales* Engler, 1892  
*Diospyrales* Prantl, 1874  
 141. *Ebenaceae* Gürcke, 1891, *nom. cons.*  
*Guaiacaceae* A.L. Jussieu, 1789  
*Diospyraceae* Vest, 1818  
 142. *Lissocarpaceae* Gilg, 1924, *nom. cons.*  
 53. *Styracales* Burnett, 1835  
 143. *Styracaceae* Dumortier, 1829, *nom. cons.*  
*Halesiaceae* D. Don, 1828  
 54. *Sapotales* J.D. Hooker, 1868  
 144. *Sapotaceae* A.L. Jussieu, 1789, *nom. cons.*  
*Achradaceae* Vest, 1818  
*Bumeliaceae* Barnhart, 1895  
 145. *Boerlagellaceae* H.J. Lam, 1925  
 146. *Sarcospermataceae* H.J. Lam, 1925, *nom. cons.*  
 M. *Primulanae* R. Dahlgren *ex* Reveal, 1992  
 55. *Myrsinales* Bromhead, 1838  
 147. *Theophrastaceae* Link, 1829, *nom. cons.*  
 148. *Myrsinaceae* R. Brown, 1810, *nom. cons.*  
*Ardisiaceae* A.L. Jussieu, 1810  
*Embeliaceae* J. Agardh, 1858  
 149. *Aegicerataceae* Blume, 1833  
 56. *Primulales* Dumortier, 1829  
*Samolales* Dumortier, 1829  
 150. *Primulaceae* Ventenat, 1799, *nom. cons.*  
*Lysimachiaceae* A.L. Jussieu, 1789  
*Anagallidaceae* Batsch *ex* Borckhausen, 1797  
*Samolaceae* Rafinesque, 1820  
 151. *Coridaceae* J. Agardh, 1858  
 N. *Plumbaginanae* Takhtajan *ex* Reveal, 1992  
 57. *Plumbaginales* Lindley, 1833  
 152. *Plumbaginaceae* A.L. Jussieu, 1789, *nom. cons.*  
 153. *Aegialitidaceae* Linczevski, 1968  
 154. *Limoniaceae* Seringe, 1851, *nom. cons. prop.*  
*Staticaceae* Cassel, 1817  
*Armeriaceae* Horaninow, 1834  
 O. *Polygonanae* Takhtajan *ex* Reveal, 1992  
 58. *Polygonales* Dumortier, 1829  
 155. *Polygonaceae* A.L. Jussieu, 1789, *nom. cons.*  
*Rumicaceae* Martinov, 1820  
*Eriogonaceae* (Dumortier) Meisner, 1841  
*Persicariaceae* Adanson *ex* Post & Kuntze, 1903  
 156. *Calligonaceae* Chalkuziev, 1985  
 P. *Celastranae* Takhtajan, 1967



59. Celastrales Baskerville, 1839  
 157. Celastraceae R. Brown, 1814, *nom. cons.*  
*Euonymaceae* A.L. Jussieu *ex* Berchtold & J. Presl, 1820  
*Chingithamnaceae* Handel-Mazetti, 1932  
 158. Canotiaceae Airy Shaw, 1965  
 159. Hippocrateaceae A.L. Jussieu, 1811, *nom. cons.*  
*Salaciaceae* Rafinesque, 1838  
 160. Siphonodontaceae (Croizat) Gagnepain & Tardieu *ex* Tardieu, 1951, *nom. cons.*  
 161. Pottingeriaceae (Engler) Takhtajan, 1987  
 162. Goupiaceae Miers, 1862  
 163. Lophopyxidaceae (Engler) H. Pfeiffer, 1951  
 164. Stackhousiaceae R. Brown, 1814, *nom. cons.*
- Q. Malvanae Takhtajan, 1967  
 60. Malvales Dumortier, 1829  
*Tiliales* Hutchinson, 1924  
 165. Sterculiaceae (Candolle) Bartling, 1830, *nom. cons.*  
*Triplobaceae* Rafinesque, 1838  
 166. Byttneriaceae R. Brown, 1814, *nom. cons.*  
*Hermanniaceae* Berchtold & J. Presl, 1820  
*Lasiopetalaceae* Reichenbach, 1823  
*Dombeyaceae* (Candolle) Bartling, 1830  
*Fremontiaceae* J. Agardh, 1858  
*Helicteraceae* J. Agardh, 1858  
*Melochiaceae* J. Agardh, 1858  
*Theobromataceae* J. Agardh, 1858  
*Chiranthodendraceae* A. Gray, 1887  
*Cacaoaceae* Augier *ex* Post & Kuntze, 1903
167. Huaceae A. Chevalier, 1947  
 168. Elaeocarpaceae A.L. Jussieu *ex* Candolle, 1824, *nom. cons.*  
*Aristoleliaceae* Dumortier, 1829  
 169. Plagiopteraceae Airy Shaw, 1965  
 170. Tiliaceae A.L. Jussieu, 1789, *nom. cons.*  
*Sparmanniaceae* J. Agardh, 1858  
 171. Monotaceae (Gilg) Maury *ex* Takhtajan, 1987.  
 172. Dipterocarpaceae Blume, 1825, *nom. cons.*  
 173. Sarcolaenaceae Caruel, 1881, *nom. cons.*  
*Schizolaenaceae* Barnhart, 1895  
*Rhodolaenaceae* Bullock, 1958  
 174. Diegodendraceae Capuron, 1964  
 175. Sphaerosepalaceae Tieghem *ex* Bullock, 1959  
*Rhopalocarpaceae* Hemsley *ex* Takhtajan, 1987  
 176. Bombacaceae Kunth, 1822, *nom. cons.*  
 177. Malvaceae A.L. Jussieu, 1789, *nom. cons.*  
*Philippodendraceae* Endlicher, 1841  
*Fugosiaceae* Martinov, 1820, *nom. illeg.*  
*Hibiscaceae* J. Agardh, 1858  
*Plagianthaceae* J. Agardh, 1858
- R. Urticanae Takhtajan *ex* Reveal, 1992  
 61. Ulmales Lindley, 1833  
*Ficales* Dumortier, 1829  
 178. Ulmaceae Mirbel, 1815, *nom. cons.*  
 179. Celtidaceae Link, 1831  
 180. Moraceae Link, 1831,

*nom. cons.*

- Artocarpaceae* R. Brown, 1818  
*Dorsteniaceae* Chevallier, 1827  
*Ficaceae* (Dumortier) Dumortier, 1829  
 181. *Cecropiaceae* C.C. Berg, 1878  
 62. *Urticales* Dumortier, 1829  
 182. *Urticaceae* A.L. Jussieu, 1789, *nom. cons.*  
 183. *Cannabaceae* Endlicher, 1837, *nom. cons.*  
*Lupulaceae* Link, 1829  
 63. *Barbeyales* Takhtajan *ex* Reveal & Takhtajan, 1993  
 184. *Barbeyaceae* Rendle, 1916, *nom. cons.*  
 5. *Rhamnanae* Takhtajan *ex* Reveal, 1992  
 64. *Rhamnales* Dumortier, 1829  
 185. *Rhamnaceae* A.L. Jussieu, 1789, *nom. cons.*  
*Frangulaceae* Candolle, 1805  
*Gouaniaceae* Rafinesque, 1837  
*Phyllicaceae* J. Agardh, 1858  
*Ziziphaceae* Adanson *ex* Post & Kuntze, 1903  
 65. *Elaeagnales* Bromhead, 1838  
 186. *Elaeagnaceae* A.L. Jussieu, 1789, *nom. cons.*  
*Hippophaeaceae* G. Meyer, 1836  
 7. *Euphorbianae* Takhtajan *ex* Reveal, 1992  
 66. *Euphorbiales* Lindley, 1833  
*Crotonales* Horaninow, 1847  
 187. *Euphorbiaceae* A.L. Jussieu, 1789, *nom. cons.*  
*Tithymalaceae* Ventenat, 1799  
*Mercurialaceae* Martinov, 1820  
*Ricinaceae* Martinov, 1820  
*Trewiaceae* Lindley, 1836  
*Tragiaceae* Rafinesque, 1838  
*Acalyphaceae* J. Agardh, 1858  
*Bertyaceae* J. Agardh, 1858  
*Crotonaceae* J. Agardh, 1858  
*Hippomanaceae* J. Agardh, 1858  
*Ricinocarpaceae* (Müller arg.) Hurusawa, 1954  
 188. *Phyllanthaceae* J. Agardh, 1858  
*Scepaceae* Lindley, 1836  
*Aporusaceae* Lindley *ex* Miquel, 1859  
*Porantheraceae* (Pax) Hurusawa, 1954  
 189. *Picrodendraceae* J.K. Small *ex* Britton & Millspaugh, 1920, *nom. cons.*  
*Pseudanthaceae* Endlicher, 1839  
*Micrantheaceae* J. Agardh, 1858  
*Paivaesusaceae* Meeuse, 1990  
 190. *Androstachyaceae* Airy Shaw, 1965  
 191. *Bischofiaceae* (Müller arg.) Airy Shaw, 1965  
 192. *Hymenocardiaceae* Airy Shaw, 1965  
 193. *Peraceae* Klotzsch, 1859  
 194. *Putranjivaceae* Endlicher, 1841  
 195. *Stilaginaceae* J. Agardh, 1824  
*Antidesmataceae* Loudon, 1830  
 196. *Uapacaceae* (Müller arg.) Airy Shaw, 1965  
 67. *Pandales* Engler & Gilg, 1912-1913  
 197. *Pandaceae* Engler & Gilg, 1913, *nom. cons.*  
*Bennettiaceae* R. Brown *ex* Schnizlein, 1843-1870, *nom. illeg.*  
 198. *Dichapetalaceae* Baillon, 1886, *nom. cons.*  
*Chailletiaceae* R. Brown, 1818  
 68. *Simmondsiales* Reveal, 1992  
 199. *Simmondsiaceae* (Müller

- arg.) Tieghem *ex* Reveal & Hoogland, 1990.
69. Thymelaeales Willkomm, 1854  
*Daphnales* Lindley, 1833  
 200. Gonystylaceae Gilg, 1897, *nom. cons.*  
 201. Aquilariaceae R. Brown, 1818  
 202. Thymelaeaceae A.L. Jussieu, 1789, *nom. cons.*  
*Daphnaceae* Ventenat, 1799  
*Phaleriaceae* Meisner, 1841
- U. Violanae R. Dahlgren *ex* Reveal, 1992
70. Cistales H.G.L. Reichenbach, 1828  
*Bizales* Lindley, 1833  
 203. Bixaceae Link, 1831, *nom. cons.*  
 204. Cochlospermaceae Planchon, 1847, *nom. cons.*  
 205. Cistaceae A.L. Jussieu, 1789, *nom. cons.*  
*Helianthemaceae* G. Meyer, 1836
71. Violales Perleb, 1826  
 206. Violaceae Batsch, 1802, *nom. cons.*  
*Ionidiaceae* Mertens & Koch, 1823  
*Leoniaceae* A. de Candolle, 1844  
*Alsodeiaceae* J. Agardh, 1858
72. Samydales Dumortier, 1829  
*Homaliales* Bromhead, 1838  
*Flacourtiiales* Heintze, 1927  
 207. Berberidopsidaceae (Veldkamp) Takhtajan, 1985.  
 208. Aphloiaceae Takhtajan, 1985  
 209. Flacourtiaceae Richard *ex* Candolle, 1824, *nom. cons.*  
*Prockiaceae* Bertuch, 1801  
*Homaliaceae* R. Brown, 1818  
 210. Samydaceae Ventenat, 1808, *nom. cons.*  
*Blakwelliaceae* Lestiboudois, 1826  
*nom. illeg.*  
 211. Kiggellariaceae Link, 1831  
*Pangiaceae* Endlicher, 1841
73. Lacistematales Baskerville, 1839  
 212. Lacistemataceae C. Martius, 1826, *nom. cons.*  
 213. Dipentodontaceae Merrill, 1941, *nom. cons.*  
 214. Peridiscaceae Kuhlmann, 1950, *nom. cons.*  
 215. Scyphostegiaceae Hutchinson, 1926, *nom. cons.*
74. Passiflorales Dumortier, 1829  
 216. Passifloraceae A.L. Jussieu *ex* Kunth, 1817, *nom. cons.*  
*Paropsiaceae* Dumortier, 1829  
*Smeathmanniaceae* C. Martius *ex* Perleb, 1838  
*Modeccaceae* Horaninow, 1847  
 217. Malesherbiaceae D. Don, 1827, *nom. cons.*  
 218. Achariaceae H. Harms, 1897, *nom. cons.*
75. Turnerales Dumortier, 1829  
 219. Turneraceae Kunth *ex* Candolle, 1828, *nom. cons.*  
*Piriquetaceae* Martinov, 1820
76. Caricales L. Benson, 1957  
 220. Caricaceae Dumortier, 1829, *nom. cons.*  
*Papayaceae* Blume, 1823, *nom. illeg.*
77. Salicales Lindley, 1833  
 221. Salicaceae Mirbel, 1815, *nom. cons.*
78. Tamaricales Hutchinson, 1924  
 222. Tamaricaceae Link, 1821, *nom. cons.*  
*Reaumuriaceae* Ehrenberg *ex* Lindley, 1830

223. Frankeniaceae A. de Saint-Hilaire *ex* Gray, 1821, *nom. cons.*
79. Cucurbitales Dumortier, 1829
224. Cucurbitaceae A.L. Jussieu, 1789, *nom. cons.*
- Nhandiobaceae* Lestiboudois, 1826
- Zanoniaceae* Dumortier, 1829
- Bryoniaceae* G. Meyer, 1836
80. Begoniales Dumortier, 1829
225. Begoniaceae J. Agardh, 1824, *nom. cons.*
81. Datiscales Dumortier, 1829
226. Datisceae R. Brown *ex* Lindley, 1830, *nom. cons.*
227. Tetramelaceae (Warburg) Airy Shaw, 1965
82. Resedales Dumortier, 1829
228. Resedaceae Candolle *ex* Gray, 1821, *nom. cons.*
- Astrocarpaceae* A. Kerner, 1891
83. Tovariales Nakai, 1943
229. Tovariaceae Pax, 1891, *nom. cons.*
84. Capparales Hutchinson, 1924
230. Pentadiplandraceae Hutchinson & Dalziel, 1928
231. Koeberliniaceae Engler, 1895, *nom. cons.*
232. Capparaceae A.L. Jussieu, 1789, *nom. cons.*
233. Cleomaceae Horaninow, 1834
234. Oxystylidaceae Hutchinson, 1969
85. Brassicales Bromhead, 1838
235. Brassicaceae Burnett, 1835, *nom. cons.*
- Cruciferae* A.L. Jussieu, 1789, *nom. cons.*; *nom. alt.*
- Drabaceae* Martinov, 1820
- Erysimaceae* Martinov, 1820
- Sisymbriaceae* Martinov, 1820
- Thlaspiaceae* Martinov, 1820
- Stanleyaceae* Nuttall, 1834
- Raphanaceae* Horaninow, 1847
86. Salvadorales R. Dahlgren *ex* Reveal, 1992
236. Salvadoraceae Lindley, 1836, *nom. cons.*
- Azimaceae* Wight & Gardner, 1845
237. Gyrostemonaceae Endlicher, 1841, *nom. cons.*
87. Batales Engler, 1907
238. Bataceae C. Martius *ex* Meisner, 1842, *nom. cons.*
- V. Santalanae Thorne *ex* Reveal, 1992
88. Olacales Benthham, 1862
239. Olacaceae Mirbel *ex* Candolle, 1824, *nom. cons.*
- Schoepfiaceae* Blume, 1850
- Tetrastylidiaceae* Calestani, 1905
- Ximeniaceae* Martinet, 1873
240. Aptandraceae Miers, 1853
241. Octoknemaceae Engler, 1909, *nom. cons.*
242. Erythralaceae (Haskar) Sleumer, 1942, *nom. cons.*
243. Opiliaceae (Benthham) Valetton, 1886, *nom. cons.*
- Cansjeraceae* J. Agardh, 1858
244. Medusandraceae Brenan, 1952, *nom. cons.*
89. Santalales Dumortier, 1829
- Anthobolales* Dumortier, 1829
245. Santalaceae R. Brown, 1810, *nom. cons.*
- Thesiaceae* Vest, 1818
- Osyridaceae* Martinov, 1820
- Anthobolaceae* Dumortier, 1829
- Canopodaceae* Presl, 1851
- Ezocarpaceae* J. Agardh, 1858



90. Loranthales Dumortier, 1829  
 246. Misodendraceae J. Agardh, 1858, *nom. cons.*  
 247. Loranthaceae A.L. Jussieu, 1808, *nom. cons.*  
*Elytranthaceae* Tieghem *ex* Nakai, 1952  
*Gaiadendraceae* Tieghem *ex* Nakai, 1952  
*Nuytsiaceae* Tieghem *ex* Nakai, 1952  
*Psittacanthaceae* Nakai, 1952  
 248. Eremolepidaceae Tieghem *ex* Nakai, 1952  
 249. Viscaceae Batsch, 1802  
*Phoradendraceae* Karsten, 1860  
*Arceuthobiaceae* Tieghem *ex* Nakai, 1952  
*Bifariaceae* Nakai, 1952  
*Dendrophthoaceae* Tieghem *ex* Nakai, 1952  
*Ginalloaceae* Tieghem *ex* Nakai, 1952  
*Lepidocerataceae* Nakai, 1952  
W. Balanophoranae R. Dahlgren *ex* Reveal, 1992  
91. Balanophorales Dumortier, 1829  
 250. Mystropetalaceae J.D. Hooker, 1853  
 251. Dactylanthaceae (Engler) Takhtajan, 1987  
 252. Sarcophytaceae A. Kerner, 1891  
 253. Heloseaceae (Schott & Endlicher) Tieghem *ex* Reveal & Hoogland, 1990  
*Scybaliaceae* A. Kerner, 1891  
 254. Lophophytaceae Horaninow, 1847  
 255. Balanophoraceae Richard, 1822, *nom. cons.*  
*Langsdorffiaceae* Tieghem *ex* Pilger & K. Krause, 1914  
 92. Cynomoriales Burnett, 1835  
 256. Cynomoriaceae (C. Agardh) Lindley, 1833, *nom. cons.*  
V. Hamamelididae Takhtajan, 1967  
X. Trochodendranae Takhtajan *ex* Reveal, 1992  
93. Trochodendrales Takhtajan *ex* Cronquist, 1981  
 257. Trochodendraceae Prantl, 1888, *nom. cons.*  
 258. Tetracentraceae A.C. Smith, 1945, *nom. cons.*  
94. Eupteleales H.-H. Hu *ex* Reveal, 1992  
 259. Eupteleaceae K. Wilhelm, 1910, *nom. cons.*  
95. Cercidiphyllales H.-H. Hu *ex* Reveal, 1992  
 260. Cercidiphyllaceae Engler, 1909, *nom. cons.*  
Y. Hamamelidanae Takhtajan, 1967  
96. Hamamelidales Grisebach, 1854  
 261. Platanaceae Lestiboudois *ex* Dumortier, 1829, *nom. cons.*  
 262. Hamamelidaceae R. Brown, 1818, *nom. cons.*  
*Fothergillaceae* Nuttall, 1818  
*Parrotiaceae* Horaninow, 1834  
*Bucklandiaceae* J. Agardh, 1858, *nom. illeg.*  
*Disanthaceae* Nakai, 1943  
 263. Rhodoleiaceae Nakai, 1943  
 264. Altingiaceae Lindley, 1846, *nom. cons.*  
97. Casuarinales Lindley, 1833  
 265. Casuarinaceae R. Brown, 1814, *nom. cons.*  
98. Buxales Takhtajan *ex* Reveal, 1992  
 266. Buxaceae Dumortier, 1822, *nom. cons.*

- Pachysandraceae* J. Agardh, 1858  
 267. *Stylocerataceae* (Pax) Baillon *ex* Reveal & Hoogland, 1990  
 99. *Didymelales* Takhtajan, 1967  
 268. *Didymelaceae* Leandri, 1937  
 100. *Daphniphyllales* Pulle *ex* Cronquist, 1981  
 269. *Daphniphyllaceae* Müller arg., 1869, *nom. cons.*  
 101. *Balanopales* Engler, 1897  
 270. *Balanopaceae* Benth, 1880, *nom. cons.*  
 102. *Myrothamnales* Nakai *ex* Reveal, 1993  
 271. *Myrothamnaceae* Niedenzu, 1891, *nom. cons.*  
 103. *Hydrostachyales* Diels *ex* Reveal, 1992  
 272. *Hydrostachyaceae* Engler, 1898, *nom. cons.*  
 Z. *Juglandanae* Takhtajan *ex* Reveal, 1992  
 104. *Rhoipteleales* Novák *ex* Reveal, 1992  
 273. *Rhoipteleaceae* Handel-Mazzetti, 1932, *nom. cons.*  
 105. *Juglandales* Dumortier, 1829  
 274. *Juglandaceae* A. Richard *ex* Kunth, 1824, *nom. cons.*  
*Platycaryaceae* Nakai, 1930  
*Pterocaryaceae* Nakai, 1930  
 106. *Myricales* Engler, 1897  
 275. *Myricaceae* Blume, 1829, *nom. cons., emend. prop.*  
 107. *Corylales* Dumortier, 1829  
*Betulales* Burnett, 1835  
 276. *Ticodendraceae* Gómez-Laurito & L.D. Gómez, 1991  
 277. *Betulaceae* Gray, 1821, *nom. cons.*  
 278. *Carpinaceae* Vest, 1818  
 279. *Corylaceae* Mirbel, 1815, *nom. cons.*  
 108. *Fagales* Engler, 1892  
*Quercales* Burnett, 1835  
 280. *Nothofagaceae* Kuprianova, 1962  
 281. *Fagaceae* Dumortier, 1829, *nom. cons.*  
*Quercaceae* Berchtold & J. Presl  
*Castaneaceae* Baillon, 1878  
 VI. *Rosidae* Takhtajan, 1967  
 AA. *Geranianae* Thorne *ex* Reveal, 1992  
 109. *Linales* Baskerville, 1839  
 282. *Humiriaceae* Adr. Jussieu, 1829, *nom. cons.*  
 283. *Ctenolophonaceae* (H. Winkler) Exell & Mendonça, 1951  
 284. *Hugoniaceae* Arnott, 1834  
 285. *Ixonanthaceae* (Benth) Exell & Mendonça, 1951, *nom. cons.*  
 286. *Linaceae* Candolle *ex* Gray, 1821, *nom. cons.*  
 287. *Erythroxylaceae* Kunth, 1822, *nom. cons.*  
*Nectaropetalaceae* (Winkler) Exell & Mendonça, 1951  
 288. *Peganaceae* (Engler) Tieghem *ex* Takhtajan, 1987  
 289. *Tetradiclidaceae* (Engler) Takhtajan, 1986  
 290. *Tribulaceae* Trautvetter, 1853  
 291. *Zygophyllaceae* R. Brown, 1814, *nom. cons.*  
 292. *Nitrariaceae* Berchtold & J. Presl, 1820  
 293. *Balanitaceae* Endlicher, 1841, *nom. cons.*  
 110. *Rhizophorales* Tieghem *ex* Reveal, 1993

294. Rhizophoraceae R. Brown,  
1814, *nom. cons.*  
*Mangiacae* Rafinesque, 1837  
*Legnotidaceae* Endlicher, 1841,  
*nom. illeg.*  
*Cassipoureaceae* J. Agardh, 1858  
*Macarisiaceae* J. Agardh, 1858
111. Oxalidales Heintze, 1927  
295. Oxalidaceae R. Brown,  
1818, *nom. cons.*  
296. Averrhoaceae Hutchin-  
son, 1959  
297. Lepidobotryaceae Léonard,  
1950, *nom. cons.*  
298. Hypseocharitaceae Wed-  
dell, 1861
112. Geraniales Dumortier, 1829  
299. Biebersteiniaceae Endlicher,  
1841  
300. Geraniaceae A.L. Jussieu,  
1789, *nom. cons.*  
*Erodiaceae* Horaninow, 1847  
301. Dirachmaceae Hutchin-  
son, 1959  
302. Ledocarpaceae Meyen,  
1834  
303. Rhynchothecaceae End-  
licher, 1841  
304. Vivianiaceae Klotzsch,  
1836
113. Balsaminales Lindley, 1833  
305. Balsaminaceae A. Richard,  
1822, *nom. cons.*  
*Hydroceraceae* Blume, 1825, *nom.*  
*illeg.*  
*Impatientaceae* Barnhart, 1895
114. Tropaeolales Takhtajan *ex*  
Reveal, 1992  
306. Tropaeolaceae A.L. Jussieu  
*ex* Candolle, 1824, *nom. cons.*  
*Cardamindaceae* Link, 1829
115. Limnanthales Nakai, 1930  
307. Limnanthaceae R. Brown,  
1833, *nom. cons.*
116. Malpighiales C. Martius,  
1835  
308. Malpighiaceae A.L. Jussieu,  
1789, *nom. cons.*
117. Vochysiales Dumortier, 1829  
309. Trigoniaceae Endlicher,  
1841, *nom. cons.*  
310. Euphroniaceae Marcano-  
Berti, 1989  
311. Vochysiaceae A. Saint-  
Hilaire, 1820, *nom. cons.*
118. Polygalales Dumortier, 1829  
312. Polygalaceae R. Brown,  
1814, *nom. cons.*  
*Moutabeaceae* Endlicher, 1841  
313. Diclidanthaceae J. Agardh,  
1858, *nom. cons.*  
314. Xanthophyllaceae (Cho-  
dat) Gagnepain *ex* Reveal &  
Hoogland, 1990  
315. Krameriaceae Dumortier,  
1829, *nom. cons.*
- BB. Rutanae Takhtajan, 1967  
119. Rutales Perleb, 1826  
*Citrales* Dumortier, 1829  
*Terebinthales* Dumortier, 1829  
316. Rutaceae A.L. Jussieu,  
1789, *nom. cons.*  
*Aurantiaceae* A.L. Jussieu, 1789  
*Citraeae* Roussel, 1806  
*Diosmaceae* R. Brown, 1814  
*Amyridaceae* R. Brown, 1818  
*Dictamnaceae* Vest, 1818  
*Zanthozylaceae* Berchtold & J.  
Presl, 1820  
*Jamboliferaceae* Martinov, 1820  
*Frazinellaceae* Nees & C. Mar-  
tius, 1823  
*Pteleaceae* Kunth, 1824  
*Cuspariaceae* (Candolle) Trat-  
tinnick, 1825  
*Monieraceae* Rafinesque, 1838,

- nom. illeg.*  
*Boroniaceae* J. Agardh, 1858  
*Correaceae* J. Agardh, 1858  
*Diplolaenaceae* J. Agardh, 1858  
*Pilocarpaceae* J. Agardh, 1858  
*Spatheliaceae* J. Agardh, 1858  
317. *Flindersiaceae* (Engler)  
C. White *ex* Airy Shaw, 1965.  
318. *Rhabdodendraceae* (Huber) Prance, 1968  
120. *Meliales* Lindley, 1833  
319. *Cneoraceae* Link, 1831,  
*nom. cons.*  
*Chamaeleaceae* Bertoloni, 1834,  
*nom. illeg.*  
320. *Simaroubaceae* Candolle,  
1811, *nom. cons.*  
*Quassiacae* Bertoloni, 1827  
*Soulameaceae* Endlicher, 1841  
*Simabaceae* Horaninow, 1847  
*Ailanthaceae* J. Agardh, 1858  
*Castelaceae* J. Agardh, 1858  
321. *Kirkiaceae* (Engler) Takh-tajan, 1967  
322. *Irvingiaceae* (Engler) Exell & Mendonça, 1951, *nom. cons.*  
323. *Ptaeroxylaceae* J. Leroy, 1960  
324. *Meliaceae* A.L. Jussieu, 1789, *nom. cons.*  
*Cedrelaceae* R. Brown, 1814  
*Swieteniaceae* Berchtold & J. Presl, 1820  
*Aitoniaceae* (Harvey) Reveal & Hoogland, 1992, *nom. cons. prop.*  
121. *Burserales* Baskerville, 1839  
325. *Burseraceae* Kunth, 1824,  
*nom. cons.*  
*Balsameaceae* Dumortier, 1829  
326. *Anacardiaceae* Lindley, 1830, *nom. cons.*  
*Cassuviaceae* A.L. Jussieu *ex* R. Brown, 1818, *nom. illeg.*  
*Comocladaceae* Martinov, 1820  
*Spondiadaceae* Martinov, 1820  
*Vernicaceae* Link, 1829  
*Schinaceae* Rafinesque, 1837  
*Sumachiaceae* Candolle *ex* Perleb, 1838, *nom. illeg.*  
327. *Podoaceae* Baillon *ex* Franchet, 1889  
328. *Pistaciaceae* C. Martius *ex* Perleb, 1838  
*Terebinthaceae* A.L. Jussieu, 1789  
*Lentiscaceae* Horaninow, 1843  
329. *Blepharocaryaceae* Airy Shaw, 1965  
330. *Tepuianthaceae* Maguire & Steyermark, 1981  
122. *Julianales* Engler, 1907  
331. *Julianiaceae* Hemsley, 1906,  
*nom. cons.*  
123. *Leitneriales* Engler, 1897  
332. *Leitneriaceae* Benthams, 1880, *nom. cons.*  
124. *Coriariales* Lindley, 1833  
333. *Coriariaceae* Candolle, 1824, *nom. cons.*  
125. *Sapindales* Dumortier, 1829  
334. *Dodonaeeaceae* Link, 1831,  
*nom. cons.*  
335. *Stylobasiaceae* J. Agardh, 1858  
336. *Emblingiaceae* (Pax) Airy Shaw, 1965  
337. *Sapindaceae* A.L. Jussieu, 1789, *nom. cons.*  
*Allophyllaceae* Martinov, 1820  
*Ornithropaceae* Martinov, 1820  
*Koelreuteriaceae* J. Agardh, 1858  
338. *Meliosmaceae* Endlicher, 1841  
*Millingtoniaceae* Wight & Arnott, 1834, *nom. illeg.*



- Wellingtoniaceae* Meisner, 1840  
 339. *Sabiaceae* Blume, 1851,  
*nom. cons.*  
 340. *Physenaceae* Takhtajan,  
 1985  
 341. *Melanthaceae* Link, 1831,  
*nom. cons.*  
 342. *Akaniaceae* Stapf, 1912,  
*nom. cons.*  
 343. *Bretschneideraceae* Eng-  
 ller & Gilg, 1924, *nom. cons.*  
 126. *Acerales* Lindley, 1833  
*Aesculales* Bromhead, 1838  
 344. *Hippocastanaceae* Can-  
 dolle, 1824, *nom. cons.*  
*Aesculaceae* Berchtold & J. Presl,  
 1820  
*Paviaceae* Horaninow, 1834  
 345. *Aceraceae* A.L. Jussieu,  
 1789, *nom. cons.*  
 127. *Moringales* Nakai, 1943  
 346. *Moringaceae* R. Brown  
 ex Dumortier, 1829, *nom. cons.*  
*Hyperantheraceae* Link, 1829  
 CC. *Fabanae* R. Dahlgren ex Re-  
 veal, 1992  
 128. *Connarales* Burnett, 1835  
 347. *Surianaceae* Arnott, 1834,  
*nom. cons.*  
 348. *Connaraceae* R. Brown,  
 1818, *nom. cons.*  
*Cnestidaceae* (Rafinesque) Rafin-  
 esque, 1830  
 129. *Fabales* Bromhead, 1838  
*Papilionales* Batsch, 1802  
*Lotales* Burnett, 1835  
*Mimosales* Burnett, 1835  
*Cassiales* Horaninow, 1847  
 349. *Caesalpiniaceae* R. Brown,  
 1814, *nom. cons.*  
*Cassiaceae* Vest, 1818  
*Tamarindaceae* Berchtold & J.  
 Presl  
*Bauhiniaceae* Martinov, 1820  
*Ceratoniaceae* Link, 1829  
*Detariaceae* (Candolle) J. Hess,  
 1832  
 350. *Mimosaceae* R. Brown,  
 1814, *nom. cons.*  
 351. *Swartziaceae* (Candolle)  
 Bart-ling, 1830  
 352. *Fabaceae* Lindley, 1836,  
*nom. cons.*  
*Leguminosae* A.L. Jussieu, 1789,  
*nom. cons.*; *nom. alt.*  
*Papilionaceae* Giseke, 1792, *nom.*  
*cons.*; *nom. alt.*  
*Robiniaceae* Vest, 1818  
*Viciaceae* Berchtold & J. Presl,  
 1820  
*Aspalathaceae* Martinov, 1820  
*Astragalaceae* Martinov, 1820  
*Coronillaceae* Martinov, 1820  
*Galedupaceae* Martinov, 1820,  
*nom. illeg.*  
*Sophoraceae* Sprengel ex Wein-  
 mann, 1824  
*Hedysaraceae* Oken, 1826  
*Lotaceae* Oken, 1826  
*Lathyraceae* Burnett, 1835  
*Phaseolaceae* Schnizlein, 1843-  
 1870  
*Ciceraceae* W. Steele, 1847  
 DD. *Proteanae* Takhtajan, 1967  
 130. *Proteales* Dumortier, 1829  
 353. *Proteaceae* A.L. Jussieu,  
 1789, *nom. cons.*  
*Embothriaceae* Sprengel ex Wein-  
 mann, 1824  
*Lepidocarpaceae* Schultz-Schult-  
 zenstein, 1832, *nom. illeg.*  
 EE. *Rosanae* Takhtajan, 1967  
 131. *Rosales* Perleb, 1826  
*Sanguisorbales* Dumortier, 1829  
 354. *Rosaceae* A.L. Jussieu,  
 1789, *nom. cons.*

- Spiraeaceae* Bertuch, 1801  
*Poteriaceae* Rafinesque, 1815  
*Fragariaceae* Richard ex Nestler, 1816  
*Alchemillaceae* Martinov, 1820  
*Tormentillaceae* Martinov, 1820  
*Sanguisorbaceae* Marquis, 1820  
*Agrimoniaceae* Gray, 1821  
*Dryadaceae* Gray, 1821  
*Ulmariaceae* Gray, 1821  
*Potentillaceae* Sprengel ex Weinmann, 1824  
*Quillajaceae* D. Don, 1831  
*Neilliaceae* Miquel, 1855  
*Cercocarpaceae* J. Agardh, 1858  
*Coleogynaceae* J. Agardh, 1858  
*Lindleyaceae* J. Agardh, 1858  
*Rhodotypaceae* J. Agardh, 1858  
355. *Amygdalaceae* (A.L. Jussieu) D. Don, 1825, *nom. cons.*  
*Prunaceae* Berchtold & J. Presl, 1820  
356. *Malaceae* J.K. Small ex Britton, 1903, *nom. cons.*  
*Pyraceae* Vest, 1818  
*Mespilaceae* Schultz-Schultzenstein, 1832  
*Cydoniaceae* Schnizlein, 1858  
357. *Neuradaceae* Link, 1829, *nom. cons. prop.*  
*Griellaceae* Martinov, 1820  
132. *Crossosomatales* Takhtajan ex Reveal, 1992  
358. *Crossosomataceae* Engler, 1897, *nom. cons.*  
133. *Crassulales* Lindley  
*Sedales* Reichenbach, 1828  
359. *Tetracarpaeaceae* Nakai, 1943  
360. *Crassulaceae* Candolle, 1805, *nom. cons.*  
*Sempervivaceae* A.L. Jussieu, 1789  
*Sedaceae* Roussel, 1806  
*Cotyledonaceae* Martinov, 1820  
*Rhodiolaceae* Martinov, 1820  
*Tillaeaceae* Martinov, 1820  
134. *Cephalotales* Nakai, 1943  
361. *Cephalotaceae* Dumortier, 1829, *nom. cons.*  
135. *Saxifragales* Dumortier, 1829  
362. *Penthoraceae* Rydberg ex Britton, 1901, *nom. cons.*  
363. *Saxifragaceae* A.L. Jussieu, 1789, *nom. cons.*  
*Pectiantiaceae* Rafinesque, 1837  
136. *Grossulariales* Lindley, 1833  
364. *Grossulariaceae* Candolle, 1805, *nom. cons.*  
*Ribesiaceae* Marquis, 1820  
137. *Parnassiales* Nakai, 1943  
365. *Francoaceae* Adr. Jussieu, 1832, *nom. cons.*  
366. *Vahliaceae* Dandy, 1959  
367. *Eremosynaceae* Dandy, 1959  
368. *Lepuropetalaceae* (Engler) Nakai, 1943  
369. *Parnassiaceae* Gray, 1821, *nom. cons.*  
370. *Greyiaceae* Hutchinson, 1926, *nom. cons.*  
138. *Droserales* Grisebach, 1854  
371. *Droseraceae* R.A. Salisbury, 1808, *nom. cons.*  
372. *Drosophyllaceae* Chrtek, Slavíková, & Studicka, 1989  
373. *Dionaeaceae* Rafinesque, 1837  
374. *Aldrovandaceae* Nakai, 1949  
139. *Stylidiales* Takhtajan ex Reveal, 1992  
375. *Donatiaceae* Hutchinson, 1959, *nom. cons., emend. prop.*  
376. *Stylidiaceae* R. Brown,

- 1810, *nom. cons.*  
*Candolleaceae* Mueller, 1882-1883, *nom. illeg.*
140. Diapensiales Engler & Gilg, 1924  
 377. Diapensiaceae (Link) Lindley, 1836, *nom. cons.*  
*Galacaceae* D. Don, 1827
141. Roridulales Nakai, 1943  
 378. Roridulaceae Engler & Gilg, 1924, *nom. cons.*
142. Bruniales Dumortier, 1829  
 379. Anisophylleaceae Ridley, 1922  
*Polygonanthaceae* Croizat, 1943  
 380. Bruniaceae R. Brown *ex* Candolle, 1825, *nom. cons.*  
*Berzeliaceae* Nakai, 1943  
 381. Grubbiaceae Endlicher, 1839, *nom. cons.*  
*Ophiraceae* Arnott, 1841
143. Geissolomatales Takhtajan *ex* Reveal, 1992  
 382. Geissolomataceae Endlicher, 1841, *nom. cons.*
144. Cunoniales Hutchinson, 1924  
 383. Cunoniaceae R. Brown, 1814, *nom. cons.*  
*Belangeraceae* J. Agardh, 1858  
*Callicomaceae* J. Agardh, 1858  
 384. Baueraceae Lindley, 1830  
 385. Eucryphiaceae Endlicher, 1841, *nom. cons.*  
 386. Brunelliaceae Engler, 1897, *nom. cons.*  
 387. Davidsoniaceae Bange, 1952  
 388. Staphyleaceae (Candolle) Lindley, 1829, *nom. cons.*  
*Ochranthaceae* Lindley *ex* Endlicher, 1841  
 389. Tapisciaceae (Pax) Takhtajan, 1987
- FF. Vitanae Takhtajan *ex* Reveal 1992  
 145. Vitales Burnett, 1835  
 390. Vitaceae A.L. Jussieu 1789, *nom. cons.*  
*Ampelopsidaceae* Kosteletzkyy 1835  
*Cissaceae* Horaninow, 1847  
*Pterisanthaceae* J. Agardh, 1847  
 391. Leeaceae (Candolle) Dumortier, 1829, *nom. cons.*
- GG. Cornanae Thorne *ex* Reveal 1992  
 146. Hydrangeales Nakai, 1943  
 392. Philadelphaceae Martinov, 1820  
 393. Hydrangeaceae Dumortier, 1829, *nom. cons.*  
*Hortensiaceae* Berchtold & J. Presl, 1820  
*Kirengeshomaceae* Nakai, 1943  
 394. Escalloniaceae R. Brown *ex* Dumortier, 1829, *nom. cons.*  
 395. Argophyllaceae (Engler) Takhtajan, 1987  
 396. Iteaceae J. Agardh, 1858, *nom. cons.*  
 397. Tribelaceae (Engler) Airy Shaw, 1965  
 398. Dulongiaceae J. Agardh, 1858, *nom. cons. prop.*  
*Phyllonomataceae* J.K. Small, 1905, *nom. rej. prop.*  
 399. Pterostemonaceae J.K. Small, 1905, *nom. cons.*  
 400. Griselinaceae (Wangerin) Takhtajan, 1987  
 401. Carpodetaceae Fenzl, 1847  
 402. Alseuosmiaceae Airy Shaw, 1965  
 403. Montiniaceae Nakai, 1943, *nom. cons.*  
 404. Melanophyllaceae Takhtajan, 1987

- jan *ex* Airy Shaw, 1972  
 406. Rousseeaceae Candolle, 1839  
 407. Columelliaceae D. Don, 1828, *nom. cons.*  
 408. Desfontainiaceae Endlicher, 1841  
 147. Brexiales Lindley, 1833  
 405. Brexiaceae Loudon, 1830.  
*Izerbaceae* Grisebach, 1854  
 148. Gunnerales Takhtajan *ex* Reveal, 1992  
 409. Gunneraceae Meisner, 1842, *nom. cons.*  
 149. Haloragales Bromhead, 1838  
 410. Haloragaceae R. Brown, 1814, *nom. cons.*  
*Cercodiaceae* A.L. Jussieu, 1817  
 411. Myriophyllaceae Schultz-Schultzenstein, 1832  
 150. Cornales Dumortier, 1829  
 412. Davidiaceae (H. Harms) H.L. Li, 1955  
 413. Nyssaceae A.L. Jussieu *ex* Dumortier, 1829, *nom. cons.*  
 414. Mastixiaceae Calestani, 1905  
 415. Cornaceae (Dumortier) Dumortier, 1829, *nom. cons.*  
 416. Curtisiaceae (H. Harms) Takhtajan, 1987  
 417. Alangiaceae Candolle, 1828, *nom. cons.*  
 418. Aucubaceae J. Agardh, 1858  
 151. Garryales Lindley, 1846  
 419. Garryaceae Lindley, 1834, *nom. cons.*  
 152. Aralidiales Takhtajan *ex* Reveal, 1992  
 420. Aralidiaceae Philipson & Stone, 1980  
 HH. Eucommianae Takhtajan *ex* Reveal, 1992  
 153. Eucommiales Nemejc *ex* Cronquist, 1981  
 421. Eucommiaceae Engler, 1909, *nom. cons.*  
 154. Icacinales Tieghem *ex* Reveal, 1993  
 422. Icacinaceae (Bentham) Miers, 1851, *nom. cons.*  
*Phytocrenaceae* Arnott *ex* Brown, 1852  
*Pennantiaceae* J. Agardh, 1858  
 423. Metteniusaceae Schnizlein, 1843-1870  
 424. Corynocarpaceae Engler, 1897, *nom. cons.*  
 425. Cardiopteridaceae Blume, 1849, *nom. cons.*  
*Peripterygiaceae* F.N. Williams, 1905  
 426. Aextoxicaceae Engler & Gilg, 1920, *nom. cons.*  
 155. Pittosporales Lindley, 1833  
 427. Pittosporaceae R. Brown, 1814, *nom. cons.*  
 156. Byblidales Nakai *ex* Reveal, 1993  
 428. Byblidaceae Domin, 1922, *nom. cons.*  
 429. Tremandraceae R. Brown *ex* Candolle, 1824, *nom. cons.*  
 II. Podostemonanae R. Dahlgren *ex* Reveal, 1992  
 157. Podostemales Lindley, 1833  
*Marathrales* Dumortier, 1829  
 430. Podostemaceae Richard *ex* C. Agardh, 1822, *nom. cons.*  
*Marathraceae* Dumortier, 1829  
 431. Tristichaceae J.C. Willis, 1915  
*Philocrenaceae* Bongard, 1834  
 JJ. Aralianae Takhtajan, 1967



158. Torricelliales Takhtajan *ex*  
Reveal, 1992
432. Helwingiaceae Decaisne,  
1836
433. Torricelliaceae (Wangerin)  
H.H. Hu, 1934
159. Araliales Burnett, 1835
- Angelicales* Burnett, 1835
- Ammiales* J.K. Small, 1903
- Apiales* Nakai, 1930
434. Araliaceae A.L. Jussieu,  
1789, *nom. cons.*
- Hederaceae* Giseke, 1792
- Botryodendraceae* J. Agardh,  
1858
435. Hydrocotylaceae (Drude)  
N. Hylander, 1945, *nom. cons.*
436. Saniculaceae (Drude) A.  
Löve & D. Löve, 1974
- Eryngiaceae* Rafinesque, 1838
437. Apiaceae Lindley, 1836,  
*nom. cons.*
- Umbelliferae* A.L. Jussieu, 1789,  
*nom. cons.*; *nom. alt.*
- Angelicaceae* Martinov, 1820
- Bupleuraceae* Martinov, 1820
- Daucaceae* Martinov, 1820
- Imperatoriaceae* Martinov, 1820
- Pastinacaceae* Martinov, 1820
- Coriandraceae* Burnett, 1835
- Smyrniaceae* Burnett, 1835
- Ammiaceae* (J. Presl & Presl)  
Barnhart, 1895
160. Caprifoliales Lindley, 1833
- Lonicerales* C. Baenitz, 1877
438. Caprifoliaceae A.L. Jussieu,  
1789, *nom. cons.*
- Loniceraceae* Vest, 1818
439. Carlemanniaceae Airy  
Shaw, 1965
161. Viburnales Dumortier, 1829
- Adoxales* Nakai, 1949
440. Adoxaceae Trautvetter,  
1853, *nom. cons.*
441. Sambucaceae Batsch  
Borck-hausen, 1797
442. Viburnaceae Rafinesque,  
1820
- Tinaceae* Martinov, 1820
162. Valerianales Burnett, 1835
443. Valerianaceae Batsch,  
1802, *nom. cons.*
444. Triplotegiaceae (Höck)  
Bobrov *ex* Airy Shaw, 1967
163. Dipsacales Dumortier, 1829
445. Dipsacaceae A.L. Jussieu,  
1789, *nom. cons.*
- Scabiosaceae* Adanson *ex* Poiret  
& Kuntze, 1903
446. Morinaceae Rafinesque,  
1820
- VII. Asteridae Takhtajan, 1967
- KK. Asteranae Takhtajan, 1967
164. Calycerales Burnett, 1835
447. Calyceraceae R. Brown  
*ex* Richard, 1820, *nom. cons.*
- Boopidaceae* Cassini, 1816
165. Asterales Lindley, 1833
- Ambrosiales* Dumortier, 1829
- Carduales* J.K. Small, 1903
448. Cichoriaceae A.L. Jussieu,  
1789, *nom. cons.*
- Cynaraceae* A.L. Jussieu, 1789
- Cnicaceae* Vest, 1818
- Centaureaceae* Martinov, 1820
- Lapsanaceae* Martinov, 1820
- Picridaceae* Martinov, 1820
- Serratulaceae* Martinov, 1820
- Echinopaceae* Dumortier, 1829
- Acarnaceae* Link, 1829
- Perdiciaceae* Link, 1829
- Carduaceae* Dumortier, 1829
- Mutisiaceae* Burnett, 1835
- Nassauviaceae* Burmeister, 1845
- Lactucaceae* Drude, 1879
- Arctotidaceae* Bessey, 1914

449. Asteraceae Dumortier, 1822, *nom. cons.*  
*Compositae* Giseke, 1792, *nom. cons.*, *nom. alt.*  
*Tanacetaceae* Vest, 1818  
*Anthemidaceae* Martinov, 1820  
*Artemisiaceae* Martinov, 1820  
*Athanasaceae* Martinov, 1820  
*Eupatoriaceae* Martinov, 1820  
*Santolinaceae* Martinov, 1820  
*Heleniaceae* Rafinesque, 1824  
*Calendulaceae* Link, 1829  
*Coreopsidaceae* Link, 1829  
*Helichrysaceae* Link, 1829  
*Partheniaceae* Link, 1829  
*Helianthaceae* Dumortier, 1829  
*Gnaphaliaceae* F. Rudolphi, 1830  
*Senecionaceae* Spenner, 1834  
*Vernoniaceae* Burmeister, 1837  
*Matricariaceae* Voigt, 1845  
*Inulaceae* Bessey, 1914  
450. Ambrosiaceae Dumortier, 1829, *nom. cons.*, *emend. prop.*  
*Xanthiaceae* Vest, 1818
- LL. Campanulanae Takhtajan *ex* Reveal, 1992
166. Campanulales Reichenbach, 1828
451. Menyanthaceae (Dumortier) Dumortier, 1829, *nom. cons.*  
452. Pentaphragmataceae J. Agardh, 1858, *nom. cons.*  
453. Sphenocleaceae C. Martius *ex* Candolle, 1839, *nom. cons.*  
*Pongatiaceae* Meisner, 1839, *nom. illeg.*  
454. Campanulaceae A.L. Jussieu, 1789, *nom. cons.*  
*Jasionaceae* Dumortier, 1829  
*Cyananthaceae* J. Agardh, 1858  
455. Cyphiaceae A. de Can-
- dolle, 1839
456. Nemacladaceae Nuttall, 1843
457. Lobeliaceae R. Brown, 1817, *nom. cons.*
458. Cyphocarpaceae Miers, 1848
167. Goodeniales Lindley, 1833  
*Brunoniales* Lindley, 1833
459. Goodeniaceae R. Brown, 1810, *nom. cons.*  
*Scaevolaceae* Lindley, 1830
460. Brunoniaceae Dumortier, 1829, *nom. cons.*
- VIII. Lamiidae Takhtajan *ex* Reveal, 1992
- MM. Solananae R. Dahlgren *ex* Reveal, 1992
168. Solanales Dumortier, 1829
461. Solanaceae A.L. Jussieu, 1789, *nom. cons.*  
*Hyoscyamaceae* Vest, 1818  
*Atropaceae* Martinov, 1820  
*Nicotianaceae* Martinov, 1820  
*Daturaceae* Rafinesque, 1828  
*Cestraceae* Schlechtendal, 1833  
*Lyciaceae* Rafinesque, 1840
462. Salpiglossidaceae (Benth.) Hutchinson, 1969.
463. Sclerophylacaceae Miers, 1848
464. Duceodendraceae Kuhlmann, 1950
465. Goetzeaceae Miers *ex* Airy Shaw, 1965
169. Nolanales Lindley, 1833
466. Nolanaceae Dumortier, 1829, *nom. cons.*
170. Convolvulales Dumortier, 1829
467. Erycibaceae Endlicher, 1840
468. Humbertiaceae Pichon,

- 1947, *nom. cons.*  
 469. Convolvulaceae A.L. Jussieu, 1789, *nom. cons.*  
*Cressaceae* Rafinesque, 1821  
*Poranaceae* J. Agardh, 1858  
 470. Dichondraceae Dumortier, 1829, *nom. cons.*  
 471. Cuscutaceae (Dumortier) Dumortier, 1829, *nom. cons.*  
 171. Boraginales Dumortier, 1829  
*Echiales* Lindley, 1846  
 472. Hydrophyllaceae R. Brown ex Ker-Gawler, 1817, *nom. cons.*  
*Ellisiaceae* Berchtold & J. Presl, 1820  
*Hydroleaceae* Berchtold & J. Presl, 1820  
*Sagoneaceae* Martinov, 1820  
*Eutocaceae* Horaninow, 1847  
 473. Ehretiaceae C. Martius ex Lindley, 1830, *nom. cons.*  
 474. Cordiaceae R. Brown ex Dumortier, 1829, *nom. cons.*  
*Sebestenaceae* Ventenat, 1799  
 475. Heliotropiaceae Schrader, 1820, *nom. cons.*  
 476. Boraginaceae A.L. Jussieu, 1789, *nom. cons.*  
*Buglossaceae* Hoffmannsegg & Link, 1810  
*Anchusaceae* Vest, 1818  
*Cerinthaceae* Martinov, 1820  
*Onosmaceae* Martinov, 1820  
*Echiaceae* Rafinesque, 1837  
 477. Wellstediaceae (Pilger) Novák, 1943  
 478. Hoplestigmataceae Gilg, 1924, *nom. cons.*  
 479. Lennoaceae Solms-Laubach, 1870, *nom. cons.*  
 480. Tetrachondraceae Wettstein, 1924  
 172. Polemoniales Bromhead, 1838  
 481. Cobaeaceae D. Don, 1824  
 482. Polemoniaceae A.L. Jussieu, 1789, *nom. cons.*  
 NN. Loasanae R. Dahlgren ex Reveal, 1992  
 173. Loasales Bessey, 1907  
 483. Loasaceae Dumortier, 1822, *nom. cons.*  
*Gronoviaceae* Endlicher, 1841  
*Cevalliaceae* Grisebach, 1854  
 OO. Myrtanae Takhtajan, 1967  
 174. Lythrales Oliver, 1895  
 484. Psiloxylonaceae Croizat, 1961  
 485. Heteropyxidaceae Engler & Gilg, 1920, *nom. cons.*  
 486. Lythraceae Jaume Saint-Hilaire, 1805, *nom. cons.*  
*Salicariaceae* A.L. Jussieu, 1789  
*Ammanniaceae* Horaninow, 1834  
*Lagerstroemiaceae* J. Agardh, 1858  
*Lawsoniaceae* J. Agardh, 1858  
 487. Duabangaceae Takhtajan, 1986  
 488. Sonneratiaceae Engler & Gilg, 1924, *nom. cons.*  
*Blattiaceae* Niedenzu, 1892  
 489. Punicaceae Horaninow, 1834  
 490. Alzateaceae S. Graham, 1985  
 491. Rhynchocalycaceae L. Johnson & B. Briggs, 1985.  
 492. Trapaceae Dumortier, 1829, *nom. cons.*  
 493. Crypteroniaceae A. de Candolle, 1868, *nom. cons.*  
*Henslowiaceae* Lindley, 1835  
 175. Penaeales Lindley, 1833  
 494. Penaeaceae Sweet ex Guille-

- min, *nom. cons.*
495. Oliniaceae Harvey & Sonder, 1862, *nom. cons.*
176. Melastomatales Oliver, 1895
496. Melastomataceae A.L. Jussieu, 1789, *nom. cons.*
- Rheziaceae Dumortier, 1822
- Miconiaceae Koch, 1857
- Blakeaceae Reichenbach ex Barnhart, 1895
497. Memecylaceae Candolle, 1828
- Mouririaceae Gardner, 1849, *nom. illeg.*
177. Combretales Baskerville, 1839
498. Combretaceae R. Brown, 1810, *nom. cons.*
- Terminaliaceae Jaume Saint-Hilaire, 1805
- Myrobalanaceae Martinov, 1820
- Bucidaceae Sprengel ex Weinmann, 1824
- Sheadendraceae Bertoloni f., 1850
178. Onagrales Reichenbach, 1828
- Oenotherales Bromhead, 1838
499. Onagraceae A.L. Jussieu, 1789, *nom. cons.*
- Epilobiaceae Ventenat, 1799
- Oenotheraceae Robin, 1807
- Isnardiaceae Martinov, 1820
- Jussiaeaceae Martinov, 1820
- Circaeaceae Lindley, 1829
179. Myrtales Reichenbach, 1828
500. Myrtaceae A.L. Jussieu, 1789, *nom. cons.*
- Myrrhiniaceae Arnott, 1839
- Kaniaceae Nakai, 1943
501. Leptospermaceae F. Rudolphi, 1830
- Melaleucaceae Vest, 1818
- Chamelauciaceae Candolle ex F. Rudolphi, 1830
- PP. Gentiananae Thorne ex Reveal, 1992
180. Loganiales Lindley, 1833
502. Loganiaceae R. Brown ex C. Martius, 1827, *nom. cons.*
503. Strychnaceae Candolle ex Perleb, 1826
- Gardneriaceae Wallich ex Perleb, 1838
504. Potaliaceae C. Martius, 1827
505. Spigeliaceae C. Martius, 1827
506. Antoniaceae Hutchinson, 1959
507. Plocospermataceae Hutchinson, 1973
181. Rubiales Dumortier, 1829
- Cinchonales Lindley, 1833
- Galiales Bromhead, 1838
508. Naucleaceae (Candolle) Wernham, 1911
- Cinchonaceae Batsch, 1802
- Cephalanthaceae Rafinesque, 1820
- Sabiceaceae Martinov, 1820
509. Rubiaceae A.L. Jussieu, 1789, *nom. cons.*
- Coffeaceae Batsch, 1802
- Guettardaceae Batsch, 1802
- Aparinaceae Hoffmannsegg & Link, 1813-1820
- Operculariaceae A.L. Jussieu ex Perleb, 1818
- Catesbaeaceae Martinov, 1820
- Coutareaceae Martinov, 1820
- Nonateliaceae Martinov, 1820
- Hydrophylaceae Martinov, 1820
- Pagamaeaceae Martinov, 1820
- Randiaceae Martinov, 1820
- Spermacoceaceae Sprengel ex Weinmann, 1824
- Gardeniaceae Dumortier, 1829



- Hedyotidaceae* Dumortier, 1829  
*Lygodisodeaceae* Bartling, 1830  
*Psychotriaceae* F. Rudolphi, 1830  
*Asperulaceae* Spenner, 1835  
*Galiaceae* Lindley, 1836  
*Lippayaceae* Meisner, 1838  
*Houstoniaceae* Rafinesque, 1840  
 510. *Henriqueziaceae* Bremekamp, 1957  
 511. *Dialypetalanthaceae* Rizzi-  
 ni & Occhioni, 1948, *nom.*  
*cons.*  
 182. *Theligonales* Nakai, 1942  
 512. *Theligonaceae* Dumortier,  
 1829, *nom. cons.*  
*Cynocrambaceae* Endlicher, 1841,  
*nom. illeg.*  
 183. *Apocynales* Bromhead, 1838  
*Vincales* Horaninow, 1847  
 513. *Apocynaceae* A.L. Jussieu,  
 1789, *nom. cons.*  
*Vincaceae* Vest, 1818  
*Cerberaceae* Martinov, 1820  
*Pacouriaceae* Martinov, 1820,  
*nom. illeg.*  
*Carissaceae* Sprengel ex Wein-  
 mann, 1824  
*Plumeriaceae* Horaninow, 1834  
*Ophioxylaceae* C. Martius ex  
 Perleb, 1838  
*Willughbeiaceae* J. Agardh, 1858  
 514. *Periplocaceae* Schlechter,  
 1905, *nom. cons.*  
 184. *Asclepiadales* Dumortier,  
 1829  
 515. *Asclepiadaceae* R. Brown,  
 1810, *nom. cons.*  
*Stapeiaceae* Horaninow, 1834  
*Cynanchaceae* G. Meyer, 1836  
 185. *Gentianales* Lindley, 1833  
*Chironiales* Grisebach, 1854  
 516. *Gentianaceae* A.L. Jussieu,  
 1789, *nom. cons.*  
*Coutoubeaceae* Martinov, 1820  
*Obolariaceae* Martinov, 1820  
*Chironiaceae* Horaninow, 1847  
 517. *Saccifoliaceae* Maguire  
 & Pires, 1978  
 Q.Q. *Lamianae* Takhtajan, 1967  
 186. *Jasminales* Dumortier, 1829  
*Oleales* Lindley, 1833  
*Ligustrales* Bischoff, 1840  
 518. *Jasminaceae* A.L. Jussieu  
 1789  
*Bolivariaceae* Grisebach, 1838  
*Nyctanthaceae* J. Agardh, 1858  
 519. *Oleaceae* Hoffmannsegg  
 & Link, 1813-1820, *nom. con.*  
*Lilacaceae* Ventenat, 1799  
*Frazinaceae* Vest, 1818  
*Ligustraceae* G. Meyer, 1836  
*Forestieraceae* Endlicher, 1841  
*Schreberaceae* (Wight) Schniz-  
 lein, 1843-1870  
*Syringaceae* Horaninow, 1847  
 187. *Plantaginales* Lindley, 1833  
 520. *Plantaginaceae* A.L. Jussieu  
 1789, *nom. cons.*  
*Littorellaceae* Gray, 1821  
*Psylliaceae* Horaninow, 1834  
 188. *Bignoniales* Lindley, 1833  
 521. *Bignoniaceae* A.L. Jussieu  
 1789, *nom. cons.*  
*Crescentiaceae* Dumortier, 1829  
 522. *Pedaliaceae* R. Brown,  
 1810, *nom. cons.*  
*Sesamaceae* R. Brown ex Berch-  
 told & J. Presl, 1820  
 523. *Trapellaceae* Honda &  
 Saki-saka, 1930  
 524. *Martyniaceae* Stapf, 1895,  
*nom. cons.*  
 189. *Scrophulariales* Lindley, 1833  
*Rhinanthales* Dumortier, 1829  
*Veratrales* Dumortier, 1829  
 525. *Buddlejaceae* K. Wilhelm,

- 1910, *nom. cons.*
526. Myoporaceae R. Brown, 1810, *nom. cons.*
- Bontiaceae* Horaninow, 1834
527. Scrophulariaceae A.L. Jussieu, 1789, *nom. cons.*
- Pedicularidaceae* A.L. Jussieu, 1789
- Rhinanthaceae* Ventenat, 1799
- Antirrhinaceae* Persoon, 1807
- Caprariaceae* Martinov, 1820
- Chelonaceae* Martinov, 1820
- Digitalidaceae* Martinov, 1820
- Euphrasiaceae* Martinov, 1820
- Gratiolaceae* Martinov, 1820
- Linariaceae* Martinov, 1820
- Melampyraceae* Richard *ex* Hooker & Lindley, 1821
- Verbascaceae* Rafinesque, 1821
- Aragoaceae* D. Don, 1835
- Sibthorpiaceae* D. Don, 1835
- Calceolariaceae* Rafinesque, 1838
- Veronicaceae* Rafinesque, 1838
- Oxycladaceae* (Miers) Schnizlein, 1855-1870
- Limosellaceae* J. Agardh, 1858
- Erinaceae* Duvau *ex* L. Pfeiffer, 1873
- Paulowniaceae* Nakai, 1949
528. Spielmanniaceae J. Agardh, 1858
529. Selaginaceae Choisy, 1823, *nom. cons.*
- Hebenstretiaceae* Horaninow, 1834
530. Ellisiohyllaceae Honda, 1930
531. Orobanchaceae Ventenat, 1799, *nom. cons.*
- Phelypaeaceae* Horaninow, 1834
- Aeginetiaceae* Livera, 1927
190. Globulariales Dumortier, 1829
532. Retziaceae Bartling, 1830
533. Stilbaceae Kunth, 1831, *nom. cons.*
534. Globulariaceae Candolle, 1805, *nom. cons.*
191. Lentibulariales Lindley, 1833
- Pinguicularales* Dumortier, 1829
535. Lentibulariaceae Richard, 1808, *nom. cons.*
- Utriculariaceae* Hoffmannsegg & Link, 1820
- Pinguiculaceae* Dumortier, 1829
192. Acanthales Lindley, 1833
536. Nelsoniaceae (Nees) Sreemadhavan, 1977
537. Thunbergiaceae Bremekamp, 1954
538. Meyeniaceae Sreemadhavan, 1977
539. Mendonciaceae Bremekamp, 1954
540. Acanthaceae A.L. Jussieu, 1789, *nom. cons.*
541. Justiciaceae Rafinesque, 1838
542. Thomandersiaceae Sreemadhavan, 1977
193. Gesneriales Dumortier, 1829
543. Gesneriaceae Dumortier, 1822, *nom. cons.*
- Belloniaceae* Martinov, 1820
- Didymocarpaceae* D. Don, 1822
- Cyrtandraceae* Jack, 1823
- Besleriaceae* Rafinesque, 1838
- Ramondaceae* Godron, 1850
194. Callitrichales Dumortier, 1829
544. Callitrichaceae Link, 1821, *nom. cons.*
- Stellariaceae* MacMillan, 1892, *nom. illeg. non* Dumortier, 1822
195. Hippuridales Burnett, 1835
545. Hippuridaceae Link, 1821,

*nom. cons.*

196. Verbenales Horaninow, 1847  
 546. Verbenaceae Jaume Saint-Hilaire, 1805, *nom. cons.*  
*Viticaceae* A.L. Jussieu, 1789  
*Lantanaceae* Martinov, 1820  
*Aegiphilaceae* Rafinesque, 1838  
*Siphonanthaceae* Rafinesque, 1838  
*Durantaceae* J. Agardh, 1858  
*Petreaceae* J. Agardh, 1858  
 547. Phrymaceae Schauer, 1847, *nom. cons.*  
 548. Symphoremataceae (Meisner) Moldenke *ex Reveal* & Hoogland, 1991  
 549. Cyclocheilaceae Marais, 1981  
 550. Nesogenaceae Marais, 1981  
 551. Avicenniaceae Endlicher, 1841, *nom. cons.*  
 197. Lamiales Bromhead, 1838  
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| <i>Violaceae</i> , 206       | <i>Zanthoxylaceae</i> , 316   |
| <i>Violales</i> , 71         | <i>Zeaceae</i> , 669          |
| <i>Violanae</i> , U          | <i>Zephyranthaceae</i> , 623  |
| <i>Viscaceae</i> , 249       | <i>Zingiberaceae</i> , 674    |
| <i>Vitaceae</i> , 390        | <i>Zingiberales</i> , 242     |
| <i>Vitales</i> , 145         | <i>Zingiberanae</i> , CCC     |
| <i>Vitanae</i> , FF          | <i>Zingiberidae</i> , XIII    |
| <i>Viticaceae</i> , 546      | <i>Ziziphaceae</i> , 185      |
| <i>Vivianiaceae</i> , 304    | <i>Zosteraceae</i> , 571      |
| <i>Vochysiaceae</i> , 311    | <i>Zosterales</i> , 207       |
| <i>Vochysiales</i> , 117     | <i>Zygophyllaceae</i> , 291   |

#### ACKNOWLEDGMENT

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## ERRATUM

M.H. MacRoberts & B.H. MacRoberts

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In MacRoberts & MacRoberts (1993), we reported that the age estimated from cores of *Pinus palustris* P. Mill. in two glades ranged from 120 to 380 years old. The upper figure is a miscalculation (one measurement was doubled) and the correct range is 120 to 220 years old.

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A NEW SPECIES OF *PERITYLE* (ASTERACEAE, HELENIEAE) FROM  
SONORA, MEXICO

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ABSTRACT

A new species, *Perityle alamosana* B.L. Turner, is described from southern Sonora, México. It is related to *P. batopilensis* and *P. gentryi* but readily distinguished by a combination of features including erect habit, glandular pubescent stems, and well developed ray florets.

KEY WORDS: Asteraceae, Helenieae, *Perityle*, México, Sonora

Routine identification of Mexican Asteraceae has revealed the following novelty.

***Perityle alamosana*** B.L. Turner, *sp. nov.* TYPE: MEXICO. Sonora: Rancho San Pedro and upper entrance of the cañon, 4 km N of Alamos (108° 42.3' W, 27° 02.8' N), "Evergreen forest", 480 m, 13-15 Mar 1991, *P.S. Martin, C. Lindquist, & S. Meyer s.n.* (HOLOTYPE: TEX!; Isotype: ARIZ).

*Peritylae batopilensi* A.M. Powell, similis sed caulibus ac pedicellis dense glandulosi-pubescentibus (vs. dense pilosis trichomatibus eglandulosis translucetibus) et capitulis radiatis (vs. eradiatis) differt.

Erect suffruticose perennial herbs 10-20 cm high, the basal portions decidedly woody. Stems densely glandular pilose with hairs ca. 0.25 mm long, interspersed among these a smattering of much longer eglandular translucent hairs 1-2 mm long. Midstem leaves mostly 2.0-3.5 cm long, 1.5-2.5 cm wide; petioles 1.0-1.5 cm long, pubescent like the stems; blades deltoid to cordate in outline, the undersurfaces atomiferous glandular and moderately pilose,

especially along the veins, the margins irregularly lacerate-dentate. Heads radiate, single on peduncles 1.5-2.5 cm long, the latter pubescent like the stems. Involucres campanulate, 5.5-6.0 mm high, the bracts pubescent like the peduncles. Ray florets ca. 8, the ligules yellow, ca. 6 mm long, 2 mm wide. Disk florets 20-30, the corollas yellow, 3.5-4.0 mm long, the tube ca. 1 mm long, glandular pubescent, the lobes ca. 0.5 mm long, each usually possessing 1-3, translucent hairs. Anthers yellow. Style branches linear, gradually acuminate. Achenes (immature) ca. 3 mm long, the body sparsely hispid, otherwise glabrous, epappose.

This species is closely related to *Perityle batopilensis* A.M. Powell and *P. gentryi* A.M. Powell; indeed, I had considered both of the latter to be synonymous in an early treatment of *Perityle* for México. However, more detailed examination of the type material of *P. batopilensis* and *P. gentryi* (TEX!) has now convinced me that these are good species. These several taxa belong to the subgenus *Laphamia* (sensu Powell 1973, 1983) and have a syndrome of characters that relate them: similar campanulate involucres with similar vestiture, short glandular hairs, long translucent eglandular hairs, or combinations thereof, and similar disk corollas, the lobes possessing 1-3 translucent hairs. The following couplets readily distinguish the taxa.

1. Stems repent or trailing. .... *P. gentryi*
1. Stems erect or ascending. .... (2)
  2. Stems pilose with mostly translucent eglandular hairs 1-2 mm long; ray florets with ligules absent; Chihuahua. .... *P. batopilensis*
  2. Stems pilose with mostly glandular hairs; ray florets ligulate; Sonora. .... *P. alamosana*

#### ACKNOWLEDGMENTS

I am grateful to my colleague Guy Nesom for the Latin diagnosis and to him and Mike Powell of Sul Ross State University for reviewing the manuscript.

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## **DARCYA (SCROPHULARIACEAE), A NEW GENUS FROM CENTRAL AND SOUTH AMERICA**

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### **ABSTRACT**

**Darcya**, a new genus belonging to the Scrophulariaceae is proposed. It is represented by three localized species previously treated within the genus *Stemodia* (s.l.), as follows: **D. costaricensis** (B.L. Turner) B.L. Turner, *comb. nov.*, from Costa Rica; **D. mutisii** (Fern. Alonso) B.L. Turner, *comb. nov.*, from Colombia; and **D. reliquiarum** (D'Arcy) B.L. Turner & C. Cowan, *comb. nov.*, from Panamá. Descriptions of the Central American taxa are provided, along with a comprehensive key for identification purposes. *Darcya* does not appear to be especially close to *Stemodia* (s.l.), possessing a combination of unique characters not found in that genus or yet other genera of the tribe Gratioleae in which it is positioned.

**KEY WORDS:** *Darcya*, *Stemodia*, Scrophulariaceae, Gratioleae

Preparation of a synopsis of *Stemodia* (s.l.) for North and South America (Turner & Cowan 1993; in prep.) has occasioned the present paper. In our treatment for the New World we recognized ca. 32 species. In studying the considerable diversity within this group it became apparent that the several species discussed here could not be readily accommodated within *Stemodia* (s.l.) nor could they be readily placed in any other genus of our acquaintance. This was presaged by D'Arcy who noted that the generitype, *Darcya reliquiarum*, did not conform to any of the intrageneric groupings or closely related genera proposed by Minod (1918), "and might warrant recognition at the generic level". *Darcya* has the calyx and capsular characters of *Stemodia* (s.l.), but differs from the rest of the species in having pubescent anthers, very short styles, well defined terminal racemes, 3-5 principal nerves arising from near the base of the blade, and peculiar estipitate trapezoidal seeds.



**Darcya** (Scrophulariaceae) B.L. Turner & C. Cowan, *gen. nov.*

*Stemodia* L. (*nom. cons.*) similis sed inflorescentia racemosa terminali, foliis nerviis principalibus 3-5, antheris pubescentibus, fructibus stylis corpor capsulae multo brevioribus, et seminibus trapezoidibus paginis alveolati-reticulatis distinctus.

Suffruticose perennial herbs to 1 m high. Leaves opposite, simple, petiolate, with 3 principal nerves or somewhat subpinnately nervate, the margins serrulate. Flowers arranged in terminal bracteate racemes. Calyx ebracteolate, the lobes free and essentially alike. Corollas tubular, markedly zygomorphic with well defined upper and lower lobes. Anther thecae pubescent dorsally with stiff white hairs. Capsules ovoid (4-5 mm high), 4 valvate, the styles persistent but much shorter than the body (ca. 0.3 mm long). Seeds trapezoidal, estipitate, alveolate-reticulate.

Type species, *Darcya reliquiarum* (D'Arcy) B.L. Turner & C. Cowan.

#### KEY TO SPECIES

1. Branches of the inflorescence glabrous; Costa Rica. .... *D. costaricensis*
1. Branches of the inflorescence pubescent; Panamá and Colombia. .... (2)
  2. Branches of the inflorescence glandular pubescent; corollas 7.0-8.2 mm long; Colombia. .... *D. mutisii*
  2. Branches of the inflorescence eglandular pubescent; corollas 4-5 mm long; Panamá. .... *D. reliquiarum*

***Darcya costaricensis*** (B.L. Turner) B.L. Turner, *comb. nov.* BASIONYM: *Stemodia costaricensis* B.L. Turner, *Phytologia* 73:253. 1992. TYPE: COSTA RICA. Cartago Province: "1-4 km beyond first bridge within Hydroelectric Plant Property (Instituto Costaricensis Electricidad) en-route to the reservoir at the road terminus," 4800-4900 ft, common but very local, 4 Mar 1981, *F. Almeda & K. Nakai 4734* (HOLOTYPE: TEX!; Isotype: CAS).

Sprawling or trailing suffruticose glabrous perennial herbs 10-100 cm high. Midstem leaves mostly 2-4 cm long, 1.0-1.8 cm wide; petioles mostly 3-8 mm long; blades broadly ovate to triangular ovate, trinervate to somewhat subpinnately nervate, minutely punctate beneath, the margins serrulate. Flowers arranged in terminal bracteate racemes 3-8 cm long, the pedicels glabrous,

mostly 8-14 mm long. Calyx glabrous, ebracteolate, mostly 3-4 mm long, the lobes essentially alike and free to the base. Corollas reportedly deep violet blue and "*Lobelia*-like", the tube ca. 3 mm long, the upper 2 lobes 2.5-3.0 mm long, the lower 3 lobes mostly 3-6 mm long, the central lobe 4-6 mm long. Anther thecae ca. 0.5 mm long, pubescent, separated by a globose connective. Capsule ovate, ca. 4 mm long. Seeds numerous, brown, trapezoidal, finely ornate like the hull of a peanut, ca. 0.5 mm long.

**DISTRIBUTION:** Known only from the vicinity of the type locality; flowering November-January.

**ADDITIONAL SPECIMENS EXAMINED:** COSTA RICA. Cartago: Twenty or more specimens as given with the original description.

***Darcya reliquiarum*** (D'Arcy) B.L. Turner & C. Cowan, *comb. nov.* **BASIONYM:** *Stemodia reliquiarum* D'Arcy, Ann. Missouri Bot. Gard. 66:258. 1979. **TYPE:** PANAMA. Chiriquí: La Popa above Boquete, 1500-2500 m, 20 Mar 1977, *W.G. D'Arcy 10893* (**HOLOTYPE:** MO!; progeny of type material grown from seed, F!, K!, MO!).

Sprawling perennial herbs to 40 cm high. Stems sparingly branched, sparsely pubescent, glabrescent with age. Midstem leaves mostly 3-6 cm long, 1.4-2.6 cm wide; petioles 5-10 mm long, gradually tapered upon by the blades; blades ovate, with 3 principal nerves from near the base, glabrous or nearly so, minutely glandular punctate beneath, the margins irregularly serrate. Flowers arranged mostly in terminal bracteate racemes, the pedicels sparsely pilose, mostly 9-16 mm long. Sepals 2-4 mm long, all alike, without basal bracts, glabrous or nearly so. Corollas 4-5 mm long, blue, glabrous or nearly so, the lobes subequal, 2-3 mm long, minutely pubescent ventrally. Anther thecae ca. 0.25 mm long, pubescent dorsally with conspicuous stiff white hairs, the thecae sessile or one of these on a short stipelike connective. Capsule ovate (in outline), 4-5 mm high, the persistent style ca. 0.3 mm long, ca. as long as the stigmatic area, 4 valvate. Seeds trapezoidal, alveolate-reticulate, estipitate, ca. 0.3 mm long.

**DISTRIBUTION:** Panamá, where it is known only from cloud forests near Boquete, 1200-1700 m; flowering July-March.

D'Arcy provided an illustration of this species along with his original description.

***Darcya mutisii*** (Fern. Alonso) B.L. Turner, *comb. nov.* **BASIONYM:** *Stemodia mutisii* Fern. Alonso, An. Jard. Bot. Madrid 44:394. 1987. **TYPE:** COLOMBIA. Depto. de Cundinamarca, Mpio. de San Bernardo, 1600 m, 27 Jun 1948, *M. Schneider 581-A* (**HOLOTYPE:** COL 81234).

This recently described species was first collected and illustrated following the Real Expedición Botánica del Nuevo Reino de Granada, under the direction of Mutis (1760-1790). The original illustration has been republished in black and white by F. Alonso with his original description. While I have not examined type material, the illustration and description leaves little doubt that the plant concerned belongs to *Darcya*. Indeed, it is closely similar to both *D. reliquiarum* and *D. costaricensis* but readily distinguished by its glandular pubescent inflorescence.

#### ACKNOWLEDGMENTS

We are grateful to Guy Nesom for the Latin diagnosis and to him and T.P. Ramamoorthy for reviewing the manuscript.

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## BOOKS RECEIVED

*Inducible Plant Proteins, Their Biochemistry and Molecular Biology.* J.L. Wray (ed.). Society for Experimental Biology Seminar Series 49. Cambridge University Press, 40 West 20th Street, New York, New York 10011-4211. 1992. xvi. 309 pp. \$89.95 (hardcover). ISBN 0-521-40170-4.

Drawn from a 1991 symposium, 54 authors have contributed fourteen papers to this volume. Papers treat topics such as proteins produced in response to or in conjunction with phosphate starvation, nitrate reduction, Crassulacean acid metabolism, growth hormones, ripening, nodule formation, anaerobic respiration, heat shock, cold shock, and light stimuli.

*The Language of the Cell.* Claude Kordon. Translated from the French by William J. Gladstone. McGraw-Hill Horizons of Science Series. McGraw-Hill, Inc., 1221 Avenue of the Americas, New York, New York 10020. 1993. 104 pp. \$9.95 (paper). ISBN 0-07-035875-3.

This book, part of a series to bring science to nonscientists, examines the transfer of information within and between cells. The mechanisms of message production, transfer, and receipt are discussed. Evolutionary processes affecting cellular communication are considered.



*Life Strategies of Succulents in Deserts, With Special Reference to the Namib Desert.* Dieter J. von Willert, Benno M. Eller, Marinus J.A. Werger, Enno Brinckmann, & Hans-Dieter Ihlenfeldt. Cambridge Studies in Ecology. Cambridge University Press, 40 West 20th Street, New York, New York 10011-4211. 1992. xx. 340 pp. \$89.95 (cloth). ISBN 0-521-24468-4 (cloth).

Chapter 1 defines, through morphology and anatomy, what the authors include as succulent plants, as well as information on evolution and geographic distribution of succulents. General information on deserts is found in Chapter 2, followed by a more detailed discussion of the Namib Desert in Chapter 3. Chapter 4 fills over half of the book and is devoted to discussion of physiological attributes of succulent plants. The final chapter examines life strategies of succulents.

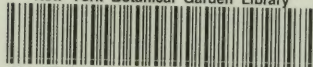
*The Olympic Rainforest, An Ecological Web.* Ruth Kirk with Jerry Franklin. The University of Washington Press, P.O. Box 50096, Seattle, Washington 98145-5096. 1992. 128 pp. \$35.00 (cloth); \$17.50 (paper). ISBN 0-295-97195-9 (cloth); 0-295-97187-8 (paper).

A beautifully illustrated volume, this book provides a glimpse of the Olympic Rainforest. Other temperate wet forests are mentioned in the book, but the present work deals almost exclusively with the forests of the Olympic Peninsula. Animals as well as plants are included in the discussions and photographs.

*Plant Biomechanics, An Engineering Approach to Plant Form and Function.* Karl J. Niklas. The University of Chicago Press, 5801 Ellis Avenue, Chicago, Illinois 60637. 1992. xiv. 607 pp. \$75.00 (cloth); \$29.95 (paper). ISBN 0-226-58630-8 (cloth); 0-226-58641-6 (paper).

This book applies technical engineering analyses to plant structures. It contains basic introductory information on plants, mechanics, and effects of geometry on mechanics. These introductory chapters are followed with more in depth treatment of water relations, cell walls, mechanics of various tissue types, mechanics of organs, mechanics of the entire plant, fluid mechanics (primarily treating airflow), and effects of mechanical limiting principles on plant evolution. In addition to black and white photographs and line drawings, the book contains four color plates.

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## Information for Authors

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